MARCH, MDCCCLXII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXL.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

THE INSECT HUNTERS,

BY EDWARD NEWMAN, F.L.S., F.Z.S.,

LATE PRESIDENT OF THE ENTOMOLOGICAL SOCIETY.

I HAVE written this little book expressly for those who do not pretend to consider themselves experienced naturalists. I do not assume any knowledge on the part of the learner, but begin at the beginning, and attempt to educate the reader up to the point of understanding my more complete and extended 'Familiar Introduction to the History of Insects;' indeed, I am not altogether without a hope that some will consider this inexpensive and unassuming book a sufficient Introduction to the Science.—EDWARD NEWMAN.

"UNRIVALLED AS A FIRST-BOOK IN ENTOMOLOGY."—*The late William Spence, F.R.S., one of the Authors of the celebrated 'Introduction to Entomology.'*

"In the 'Insect Hunters,' by Mr. Newman, the author has brought together, in a very pleasing way, a great deal of really good entomological matter bearing upon the habits, the economy and classification of insects. I can strongly recommend it to young persons who wish to obtain sound entomological information; and the kindly tone in which the work is written is deserving of much commendation."—*Address of William Wilson Saunders, Esq., to the Entomological Society of London, Anniversary Meeting*, 1858.

"This is the first book from any author who understands the art of teaching Natural History pleasantly."—*Report of the Northern Entomological Society.*

"We know of no volume that contains so much information in so small a compass on the habits and economy of insects."—*Natural History Review, Edited by A. H. Haliday, Esq.*

"*Undoubtedly* the best and most useful of Mr. Newman's entomological works."—*H. T. Stainton, Esq., Entomologist's Annual for* 1858.

"There is a capital chapter on Metamorphosis, and the families in all the orders have their prominent characteristics concisely yet emphatically set forth. * * * FOR THE YOUNG who have not had their attention drawn to Entomology WE THINK THIS AN ADMIRABLE BOOK, one that a parent might give to his child without any fear that the contents were not strictly true."—*Entomologist's Weekly Intelligencer.*

"The descriptions are accurate, and the author is well acquainted with the subject on which he writes."—*Athenæum.*

"The conception of this little work is novel, and its execution excellent. It is likely to extend very widely the knowledge of Entomology. * * * We have, in a small compass and in the most captivating and easy form, all the information that is really essential to the study of Entomology."—*Literary Gazette.*

"This is a little unassuming book, addressed by an experienced naturalist to an intelligent child, whom he leads by the hand through lanes, woods and meadows, showing her the living objects of his lessons, and explaining, in language adapted to childhood and youth, the habits and characters of each. We are spared all those unintelligible technical explanations to which children will scarcely ever listen with patience, and which they never remember."—*The Friend.*

"This work forms a complete introduction to the science of Entomology, written in clear and graceful language."—*Kentish and Surrey Mercury.*

Price 2s. 6d., post free.

BRITISH BUTTERFLIES.—Being a complete Natural History of these beautiful insects. By EDWARD NEWMAN, F.L.S., F Z.S., &c., &c.. There is a life-size figure of every British Butterfly, drawn and engraved by the first Artists, regardless of expense, and a full description of each in the various stages of Caterpillar, Chrysalis and Butterfly; with an account of the food-plant, and full directions how to find, catch and preserve these Insects, and also a diagram figure, with explanations of the terms used.

☞ This work has a portrait of the Author from a photograph by Messrs. Maull and Polyblank.—Price 7d., post free.

Address, "EDWARD NEWMAN, 9, Devonshire Street, Bishopsgate, London, N.E."

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

January 6, 1862.—J. W. DOUGLAS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Nouveaux Mémoires de la Société Impériale des Naturalistes de Moscou,' Tome xiii. Liv. II.: 'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1860, Nos. 2, 3 and 4; presented by the Society. 'Exotic Butterflies,' Part 41; by W. W. Saunders, Esq. 'Sitzungsberichte der Königl. Bayer. Akademie der Wissenschaften zu München,' 1861, I. Heft IV.; by the Academy. 'The Zoologist' for January, 1862; by the Editor. 'The Journal of the Society of Arts' for December; by the Editor. 'The Athenæum' for November and December; by the Editor. Bibliotheca Historico-Naturalis Physico-Chemica et Mathematica,' Vol. ix.; by the Editor, Ernst A. Zuchold. 'The Entomologist's Annual' for 1862; by the Editor, H. T. Stainton, Esq.

Election of a Subscriber.

W. S. M. D'Urban, Esq., of Newport House, near Exeter, was balloted for, and elected a Subscriber to the Society.

Exhibitions.

Mr. Smith exhibited a mutilated specimen of Myrmedonia Haworthi, captured by Mr. Bouchard, near Sutton, Surrey; and a singular nest of a bee of the genus Anthidium, brought from the Cape of Good Hope by Mr. D'Urban: this nest was formed of the fibres from the stems of plants, and might be mistaken for a spider's nest, from its external appearance; in the interior Mr. S. found the parasite of the bee, a species of Leucospis, believed to be L. ornata.

Mr. Smith also exhibited spines of a species of Acacia, also brought from the Cape of Good Hope by Mr. D'Urban; the interior of these formidable spines, being hollow, is frequently found occupied by the nest of a bee of the genus Hylæus. Mr. Smith believed this genus of bees constructs no cells of any kind; the pupæ is merely enclosed in a very slight web; and on opening these spines, the eggs, larvæ, and perfect bees were found mixed indiscriminately together.

Mr. Waterhouse stated that he had recently detected, in the collection of Dr. Power, specimens of Gyrophæna pulchella, a species not hitherto recorded as a native of Britain.

Mr. Bond exhibited a sample of compressed peat, cut in thin slices, which had lately been introduced in Germany as a substitute for cork for lining entomological boxes and drawers; the total absence of holes and hard veins, which are occasionally found even in the best cork, make it well adapted for the above purpose, especially when fine pins are employed, whilst the cost is said to be less than that of cork.

Dr. Knaggs exhibited some cases of species of Psychidæ, containing living pupæ, which he had lately received from Mr. James Carrighan, of Ararat, Victoria.

Professor Westwood observed that the Australian species of Psychidæ had, at the request of W. W. Saunders, Esq., been observed with great care by Mr. Stephenson, and the specimens collected by that gentleman having been placed in his (Professor Westwood's) hands, he had illustrated them in a memoir published in the 'Proceedings of the Zoological Society:' the largest of these species had been described by Mr. Saunders himself in the 'Transactions of the Entomological Society,' Vol. v. (1847) p. 43, under the name of Oiketicus elongatus, which he (Professor W.) had changed to Oiketicus Saundersii, in order to keep up uniformity in the specific nomenclature of the genus. It forms a tough leathery case, several inches long, to the outside of which long twigs are attached longitudinally. One case, exhibited by Dr. Knaggs, had not been described by Professor Westwood, although known to him, in consequence of the moth not having been reared: the case of this species is a leathery oval one, with sharp longitudinal ribs of the same material, without any extraneous materials fastened on the outside.

Mr. Dunning exhibited an admirably-executed photograph of a dark variety of Abraxas grossulariata, and read an extract from the 'Proceedings of the Northern Entomological Society' of December last, which referred to the production of it: Mr. Dunning thought that Photography might be found useful in obtaining accurate delineations of many entomological objects.

Professor Westwood observed that a work had been published at Paris, several years since, by the authorities of the Jardin des Plantes, in which Photography had been tried in different branches of Zoology, but the representations of insects had proved failures, owing to the want of accurate definition in the extended limbs, antennæ, &c., which seemed to render the act useless to Entomology, except in flat surfaces, such as the wings of Neuroptera, &c., of which the veins were capable of being very clearly represented.

On the Breeding of Varieties in Lepidoptera.

Mr. Dunning also read, from the 'Proceedings of the Northern Entomological Society,' a paper by Mr. C. S. Gregson, "On the Breeding of Varieties in Lepidoptera," in which the author detailed the result of his experiments on various species, with the view of showing that by supplying the larva with a food-plant differing from the known natural food of the species, variation from the usual coloration would be obtained in the imago.

Dr. Wallace had often noticed that on chalky soils oak-leaves were of a very pale green tint; on limestone soils, as in Wales, foliage generally had a dark leaden hue. On mosses dark tints were prevalent, as also at Killarney and Rannoch. He attributed this to the chemical difference in the soils, aided by solar and atmospheric influence. Brighton insects were notoriously pale, and inclined to fade on the setting-board; Scottish insects remarkable for their richness of colour; Welsh insects for their leaden hues. Since the juice of different plants possessed different chemical elements, he attributed to this, as also to the power possessed by the larva of assimilating these different elements, much of the variation in depth of colour in the instances cited by Mr. Gregson: he therefore referred the tone of colour in an insect's wing to the chemical elements assimilated through the medium of the plant from the soil.

Professor Westwood trusted that, if Mr. Gregson's article should only be privately circulated, the Entomological Society would obtain permission to publish it in their 'Transactions.'* He considered Mr. Gregson's remarks as important, with reference to the question of modification of species dependent on the food of the larva, which he had so often insisted upon, with reference to many so-called species of Micro-Lepidoptera. The question as to the proper term to be applied to variations in the colour of flowers was at the present moment under discussion, all variation from the normal colour being considered by some writers as monsters, and in that view Professor Westwood fully concurred, considering that every species possessed a normal condition, which it had retained ever since the period of its creation, and that every modification of size, colour or markings was monstrous.

Mr. Lubbock would like to see the experiments of Mr. Gregson continued for many successive generations of the insects; he felt convinced that important and interesting results would be arrived at by so doing, and hoped that Mr. Gregson would persevere in his experiments.

Bees and the Art of Queen Making.

Mr. Smith read the following communication:—"At the November Meeting of this Society, Mr. Tegetmeier called the attention of the members to a theory lately propounded by Principal Leitch, in an article published in the August number of 'Good Words,' entitled 'Bees and the Art of Queen Making.' I beg to lay before the Society the opinion of a correspondent, Mr. Woodbury, of Mount Radford, Exeter. This gentleman, one of the most practical bee-keepers in this country, has published some observations on the new theory, and has also added to them in a communication addressed to myself, in answer to some inquiries of my own. I have extracted the following from Mr. Woodbury's communication to the 'Journal of Horticulture and Cottage Gardener:'—'After noticing the power which bees possess of increasing the temperature of any part of their hive by an accelerated respiration, Dr. Leitch says: 'Viewing this power in connexion with the isolation of the queen's cell, we have a clew to the mystery of development. We soon see why the bees should be at so much pains to drag the royal larva out from the midst of its companions and place it in an insulated position, where a special temperature may be applied. Were the royal larva allowed to remain in its original position, a higher temperature could be applied only to the end of the cell, and the end of the cell is so small that it would be difficult to apply a differential temperature to it. To meet this difficulty, the queen is made to slide out of her old position into a new one, where she can be completely surrounded by the hatching bees, and have an elevated temperature applied to all parts; and when you look into a hive, you see the bees constantly clustering all over the insulated cell.

"'The surmise that temperature furnished the clew to the secret was confirmed by actually testing it; small thermometers were inserted into the hive, one in contact with the queen's cell, the others in different parts of the comb: we found that the difference of temperature bore out our hypothesis, that a higher temperature was steadily applied to the queen's cell. The inference is then legitimate, that temperature, if not the cause, is one of the causes which account for this, the greatest marvel of insect life.'"

---

* The paper to which this refers is published in the February number of the 'Zoologist' (Zool. 7903).

"As the Rev. Principal does not particularize any experiments beyond thermometrical observations, we may be excused for doubting whether these are quite so conclusive as he imagines, as well as for suggesting that it is just possible that he may have mistaken effect for cause, since it by no means follows that because the process of queen-raising is generally attended with an increase of temperature, the insulation of a queen's cell, or even a special temperature, is absolutely essential to its success. In frame-hives, especially, we have often found queens hatched out of cells which were so placed as to render it impossible for the bees to cluster all over them, whilst the general position of queens'-cells on the edges of combs, and, therefore, in the coldest parts of the hives, is such as of itself to raise a doubt as to the correctness of the new theory.

"Our own impression is, that the immortal Huber was most probably correct in assigning as the cause of this wonderful transformation the quality as well as the quantity of food with which the royal larva is supplied. To this hypothesis Dr. Leitch objects that it has by no means been conclusively proved, either by chemical analysis or by any other means, that the so-called royal jelly differs in any respect from the ordinary food supplied to the worker-larva.

"We now come to a circumstance which appears to us so conclusive, as to the fact of the food with which it is supplied being the true cause of this marvellous transformation of a worker-larva into a queen-bee, that we fancy, if it had come under the notice of the Reverend Principal, it would have prevented his promulgating a theory which we believe to be entirely erroneous.

"In the German 'Bienenzeitung,' or Bee Journal, is an article by the Rev. M. Kleine, one of the ablest German Apiarians, in which the following statement occurs: 'Dzierzon recently intimated, that as Huber, by introducing some royal jelly into cells containing worker-brood obtained queens, it may be possible to induce bees to construct royal cells, where the Apiarian prefers to have them, by inserting a small portion of royal jelly in cells containing worker-larvæ. If left to themselves, the bees often so crowd their royal cells together that it is difficult to remove one without fatally injuring the others; as, when such a cell is cut into, the destruction and removal of the larva usually follows. To prevent such losses I usually proceed as follows:—When I have selected a comb with unsealed brood for rearing queens, I shake or brush off the bees and trim off, if necessary, the empty cells at the margin. Then take an unsealed royal cell—which usually contains an excess of royal jelly—and remove from it a portion of the jelly, on the point of a knife or pen, and by placing it on the inner margin of any worker-cells, feel confident that the larvæ in them will be reared as queens; and, as the royal cells are separate, and on the margin of the comb, they can be easily and safely removed. This is another and important advance in practical bee-culture, for which we are indebted to the sagacity of Dzierzon.'

"The foregoing fact appears to us sufficiently conclusive as to the truth of Huber's theory, regarding the influence of food in producing the astonishing development of a worker-larva into a queen-bee, and, after giving the whole subject our best consideration, we feel warranted in pronouncing the special-temperature theory of the Rev. Mr. Leitch to be 'not proven.'

"I am very glad to find that our ideas on the queen-rearing problem are so similar. With regard to the cells of queens, they are formed of wax like all the others, and although, from being more substantial, they might not collapse so readily, their destruction would be only slightly delayed, the melting point being the same.

The only difference is in the cocoon with which they are lined, which is spun by the royal larva, and is more substantial than that of the ordinary worker-larva. This cocoon, however, does not line the upper end of the cell, as that would melt and the lower part must then drop off if an extreme temperature were applied. It has been too much the fashion of late years to decry and discredit the theories of Huber; some throw doubt on the influence or even the existence of royal jelly, but in this case, as in similar ones, I believe that accurate investigation will prove Huber to be right."

Professor Westwood remarked that the question of the development of the queen-bee, by increased heat, did not appear to him at all proved by Principal Leitch's observations. The position of the cell itself, generally on the outer edge of the comb, and never, or but very rarely, in the centre of the upper part of the hive, where the greatest heat is concentrated, seemed to militate against this new theory; whilst Professor Westwood considered that (as it was satisfactorily established that the working bee was only an abortive queen, and that a queen might be developed from an egg which in ordinary circumstances would only produce a worker), he was justified by analogy, in regarding the numerous queen wasps in a vespiary as produced from the same kind of eggs as the workers, and also that the working ant, the soldier working ant and the female ants are also only modifications produced from the same kind of eggs. He considered, therefore, that the development of the queen-bee must be explained on the same principle as that which is adopted in those other social insects, and not that a special system, namely, that of heat, is required for the queen of the hive alone.

Mr. Tegetmeier observed that, in bringing the theory of Principal Leitch under the notice of the Society, he did not wish it to be understood that he considered the evidence advanced in its favour to be conclusive, still he could not but think that the isolated position of the queen-cell very much favoured the supposition that increased heat is at least one of the causes of the perfect development of the female bee; whilst the royal jelly theory does not offer the slightest explanation of this extraordinary deviation in structure and position from the ordinary or worker cells.

Mr. Stainton read, "Descriptions of Nine New Exotic Species of Gracillaria," and exhibited a beautiful coloured plate with which he proposed to illustrate the paper in the Society's 'Transactions:' five of these species were collected near Calcutta by Mr. Atkinson, and the remaining four were sent from Moreton Bay by Mr. Diggles.

Mr. M'Lachlan read "Characters of New Species of Exotic Trichoptera, and of four New Species Inhabiting Britain."—*E. S.*

Anniversary Meeting, January 27, 1862.—J. W. Douglas, Esq., President, in the chair.

Messrs. R. H. Mitford, F. P. Pascoe, F. Smith and Alexander Wallace were elected Members of the Council, in the room of Messrs. Douglas, Janson, M'Lachlan and Stainton.

Mr. F. Smith was elected President; Mr. S. Stevens, Treasurer; and Messrs. E. Shepherd and Dunning, Secretaries.

A Report from the Council on the state of the Library and Collections was read and received.

An abstract of the Treasurer's accounts was read by Mr. M'Lachlan, one of the Auditors, and showed a balance in favour of the Society of £122 6*s.* 4*d.*

The President delivered an Address on the state and prospects of the Society and of Entomology in general; the Meeting passed a vote of thanks to the President for his Address, and ordered it to be published in the 'Proceedings' of the Society.

A vote of thanks to the President for the courteous and able manner in which he had fulfilled the duties of his position during the two years that he had occupied the Presidential Chair; to Mr. Janson, the retiring Secretary; and to the other retiring Members of the Council, was also unanimously agreed to by the Meeting.

February 3, 1862.—**Frederick Smith**, Esq., President, in the chair.

The President thanked the Society for having selected him to fill the chair; and nominated Messrs. Lubbock, Pascoe and W. Wilson Saunders to be his Vice-Presidents.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'The Journal of Entomology,' No. 4; presented by the Proprietors. 'The Athenæum' for January; by the Editor. 'The Journal of the Society of Arts' for January; by the Editor. 'The Zoologist' for February; by the Editor. 'Sitzungsberichte der Königl. Bayer. Akad. der Wissenschaften zu München,' 1861, Heft V.; by the Academy.

Exhibitions.

Mr. Dunning suggested that the accuracy of the minutes would be increased, and the value of the Society's 'Proceedings' materially enhanced, if each Member who made exhibitions, or took part in the discussions or conversations thereupon, would have the goodness to hand to the Secretary, either during or at the close of the Meeting, or to transmit to him by post, a brief note containing the substance of his communication to the Society, the names of insects referred to, and the authorities for those names, references to authors quoted, and generally any facts narrated or opinions expressed by the Member, which he thinks it desirable to have recorded. It was scarcely advisable to trust more than necessary to the Secretary's memory or power of rapid reporting; and Mr. Dunning thought that whilst the carrying the above suggestion into effect would be a great convenience to the Secretary, it would entail but slight inconvenience on each individual Member.

Mr. Lubbock exhibited a magnified drawing of a singular dipterous larva found under logs of wood; he was unable to state to what family it belonged, but hoped to breed the perfect insect.

Professor Westwood, though at first inclined to consider it the larva of one of the Muscidæ, thought it most probably referable to some species allied to Platypeza.

Mr. Walker remembered having, some years ago, found flat larvæ adhering closely to damp wood, and somewhat resembling that represented in Mr. Lubbock's figure: he agreed with Professor Westwood that the larva did not belong to the Muscidæ.

Mr. Stainton exhibited a living pupa of the lepidopterous genus Micropteryx, and a highly-magnified coloured drawing of the same, and read the following notes thereon:—

"The wing-cases, legs and antennæ are perfectly free from the body, the abdomen being able to move away from them to a considerable extent.

"The abdomen of the pupa I examined was in almost constant motion, both to and from the wing-cases, and with slight lateral motion.

"Neither the wing-cases nor the legs appear to have any individual power of motion, but the end of the abdomen would frequently move the ends of the legs by knocking against them.

"The abdomen was remarkably soft and flexible, reminding one rather of a female Psyche.

"In front of the head one seems to distinguish both pair of palpi, the antennæ and legs, the legs being longer than the antennæ, for which I at first mistook them.

"The antennæ were not symmetrical in the specimen I examined, that on the left side being close to the leg-cases, that on the right side lying nearly across the centre of the wing.

"Below the eyes and above the palpi appears a brown knob, which may possibly represent the tongue; it bears numerous bristles: immediately beneath it are two large brown projections, the use of which I am utterly at a loss to conjecture; they expand towards the tips, which are scalloped obliquely.

"Between the eyes, but above them, is a slight protuberance or beak, which is nearly transparent; above it are again some strong bristles.

"On the back a slender semi-transparent membrane projects upwards from the first abdominal segment.

"The head is very clearly separated from the thorax, and between the two is a neck or collar."

The larva was a birch-feeder, but, the perfect insect not having yet been bred, the species was unknown. The appearance of the imago of Micropteryx had long since suggested a doubt whether that genus was truly lepidopterous or trichopterous: the pupa now proved to be, as it were, midway between the proper pupa-forms of those orders.

Mr. M'Lachlan remarked that though the pupa was certainly a connecting link between Lepidoptera and Trichoptera, it could not be claimed as belonging to the latter order: the legs and antennæ did not appear to be entirely free, as was always the case in trichopterous pupæ. Moreover, the form of the larva showed that the insect was properly retained among the Lepidoptera.

Professor Westwood thought the curious neck-tie-like appendage with scalloped edges must be the covering of one of the pairs of palpi.

Mr. Janson exhibited seven species of Coleoptera, hitherto unrecorded as inhabitants of Britain, *viz.*:—

"1. Patrobus clavipes, *Thomson, Sk. Coll.* 25, 2 (1857); *Skand. Coll.* i. 214, 2 (1859). Taken by the late H. Squire near Lerwick, Shetland, in August, 1858.

"2. Harpalus (Ophonus) diffinis, *Dejean, Spec. gen.* iv. 196, 4 (1829); *Icon.* iv. 95, 4, tab. 179, f. 4 (1834). *Fairm. et Laboulb. Faune Ent. Franç.* col. i. 121, 2 (1854). *Schaum, Naturgesch. d. Ins. Deutschl.* i. 573, 3 (1860). Taken by himself near Croydon, Surrey, in September, 1860.

"3. Harpalus (Ophonus) parallelus, *Dejean, Sp. gen.* iv. 219, 25 (1829); *Icon.* 120, 25, tab. 183, f. 4 (1834). *Schaum, Naturgesch. d. Ins. Deutschl.* i. 580, 12 (1860). Captured by the late H. Squire, on the Sussex coast, February, 1858.

"4. Aleochara mœrens, *Gyll. Ins. Suec.* iv. 493, 53—54 (1827). *Eric. Gen. et Spec. Staph.* 169, 22 (1839). *Kraatz, Naturgesch. d. Ins. Deutschl.* ii. 103, 23 (1856).

"Aleochara lugubris, *Aubé, Ann. Ent. Soc. Fr.* 2me Ser. viii. 313 (1850); *Fairm. et Laboulb. Faune Ent. Franç.* col. i. 448, 19 (1856). Found by the late J. Foxcroft, in Perthshire, in 1855.

"5. Homalota Thomsoni, *Janson.*

"Homalota nigricornis, *Thomson, Ofv. af Kön. Vet. Acad. Förh.* 142, 42 (1850). *Kraatz, Naturgesch. d. Ins. Deutschl.* ii. 281, 88 (1856), *nec* Steph.

"Aleochara excavata? *Gyll. Ins. Suec.* iv. 490, 30—31 (1827). Captured by himself, near Hampstead, Middlesex, April, 1857.

"6. Xantholinus atratus, *Heer, Faun. Col. Helv.* i. 246, 7 (1839). *Kraatz, Naturgesch. d. Ins. Deutschl.* ii. 636, 5 (1857). Discovered by himself in a nest of Formica rufa, near Highgate, Middlesex, October, 1856.

"7. Thinobius brevipennis, *v. Kiesenw. Stettin. Ent. Zeit.* xi. 221 (1850). *Kraatz, Naturgesch. d. Ins. Deutschl.* ii. 885, 5 (1858). Taken by himself in Holme Fen, Huntingdonshire, May, 1859."

Mr. Ruspini exhibited a coloured figure of a variety of Lycæna Phlæas. The specimen was captured on Norwood Common in the autumn of 1858, and was principally remarkable for the absence of the usual coppery border of the posterior wings, and for the presence on each of the same pair of wings of three straight rather broad sharply-defined radiating bars, of a bright copper colour.

Mr. Lubbock requested Members of the Society to supply him with any specimens of Thysanura which it might be in their power to furnish.

Dr. Wallace, after recalling to the recollection of the Meeting a letter addressed to him by Captain Russell, of Monk's Eleigh, Suffolk, and which was read at the Meeting of the Society, held on the 2nd of December, 1861, now introduced Captain Russell to the Society, and exhibited on his behalf specimens of Callimorpha Hera, Argynnis Lathonia, Eulepia grammica, a suffused dark variety of Vanessa Urticæ, Anesychia Echiella, and an insect which was apparently Cabera rotundaria.

Captain Russell said that of Callimorpha Hera (which in Doubleday's 'List of Lepidoptera' was included amongst the "Reputed British Species") he captured five specimens on the 27th of July, 1859. The following is an extract from his diary for that day:—"Drove from Rhuabon to Wrexham; beautiful day, but very hot; about two miles from Wrexham some beautiful butterflies, one sort with brilliant scarlet wings; country very hilly, not well cultivated." Captain Russell was at that time unable to distinguish between Rhopalocera and Heterocera; and the "butterflies with brilliant scarlet wings" turned out to be C. Hera. The place where they were captured was a stony hill-side, quite uncultivated; the time about 5 P. M. The flight of the insects was sluggish, and from full flight their subsidence to perfect rest was apparently instantaneous. The wings lay flat upon the surface on which the insect rested, and none of the scarlet of the under wings was then visible. Each of the five specimens captured was taken off a bramble-leaf. The spot was revisited about 11 A. M. on the following day, but not a specimen was to be seen.

A. Lathonia was taken by Captain Russell on two occasions in August, 1859; on the first occasion five specimens; on the second two, in a meadow-field on the S.W. side of a wood belonging to Mr. T. P. Hitchcock, at Lavenham, Suffolk. The insects were shown, shortly after their capture, and whilst yet limp and not set out, to the late Professor Henslow, whose living of Hitcham was an adjoining parish to Monk's Eleigh: the Professor told him they were specimens of A. Lathonia, and added that he did not regard them as indigenous, but thought they must have been blown over from the Continent.

The specimen of Eulepia grammica was taken at the same place as C. Hera, on the occasion of Captain Russell's second visit to that spot, on the 28th of July, 1859. It was disturbed by a lighted fusee falling among some long grass; it flew with amazing rapidity for a few yards and then suddenly disappeared: all efforts to discover it were unavailing, and the search was abandoned, when the insect was again disturbed by a stone casually thrown at a butterfly sitting on a neighbouring flower, when Captain Russell succeeded in securing it in his net.

The variety of Vanessa Urticæ was captured by Captain Russell, flying in a garden at Waltisham, Suffolk. The specimen was somewhat crippled, and he had at first thought it a hybrid between V. Urticæ and V. Antiopa.

The specimen of Anesychia Echiella, *W. V.* (A. bipunctella, *F.*), which was also placed amongst the "Reputed British Species" in Mr. Doubleday's List, was taken by Captain Russell in a chalk-pit at Chelsworth, Suffolk, in the summer of 1861.

The specimen of Cabera was bred from the larva, and the reason for its exhibition was, that out of sixteen larvæ precisely similar in appearance, and all fed upon alder, fifteen produced insects of the form known as Cabera pusaria, whilst the sixteenth produced the exhibited specimen, which was of the form known as C. rotundaria.

Mr. Rye exhibited specimens of Lathrobium geminum, *Kraatz*, and read the following notes on the characters which distinguish it from the allied species:—

"Lathrobium geminum, *Kraatz* (= L. elongatum, *Gyll.*) Hitherto confounded in our collections with L. elongatum, *Linn.*), and apparently almost as common.

"L. brunnipes, the first of the larger species, apart from its very distinct characters underneath in both sexes, is at once to be distinguished by its entirely black upper surface, all the others near it in size having the elytra more or less barred on the apical half with red or reddish brown; and although this colour is sometimes suffused all over the elytron, it is never so dark as in L. brunnipes.

"The next species, L. elongatum, *Linn.*, most closely resembles L. geminum in colour, punctuation and size; the only character on the upper side being the relative length and width of the thorax and elytra.

"In L. elongatum, *Linn.*, the thorax is decidedly narrower than, and not so long as, the elytra, whereas in L. geminum it is very nearly, if not quite, as wide and long as the elytra, imparting a broader and more robust look to the insect.

"It is, however, underneath that the chief differences are to be found, as usual, in this genus.

"The male L. elongatum, *Linn.*, has on the middle of the lower surface of the penultimate segment of the abdomen a shallow longitudinal fovea, widening behind, with a thickly-elevated ridge of stiff black hairs on each side, and distinctly and acutely excised where it meets the hinder margin.

"In L. geminum the male has (in the same place) two short parallel ridges of black hairs and no acute marginal excision, each ridge terminating in a very gentle and scarcely perceptible flexuosity.

"The females of both, as in nearly all the genus, present no decided characters, the penultimate segment in each having the hinder margin beneath somewhat in the form of a cone truncated at its thick end with the corners slightly rounded, and this is perhaps more distinct in L. elongatum, but in both sexes the under-surface of the head presents sufficient difference to separate the two species, since in L. elongatum it is roughly and thickly punctured, and in L. geminum more sparsely and finely.

"The only remaining species at all like L. geminum is L. fulvipenne, which resembles it in the relative proportions of the thorax and elytra, but is altogether as distinctly elongate and slender as L. geminum is robust and broad. In L. fulvipenne also the penultimate segment of the male beneath is quite destitute of hairy ridges, having simply a shallow and somewhat oval excision in the middle of the hinder margin. The punctuation of the under surface of the head is much the same as in L. geminum, but the general facies of the insect will at once distinguish it.

"Erichson appears to have remarked the difference in structure of the present L. geminum, but referred it to a *var.* of L. elongatum, *Linn.*"

Mr. Crotch exhibited Dermestes Frischii, *Kugelan*, and read the following notes:—

"Dermestes Frischii, *Kugelan*, *Erichson*, = D. vulpinus, *Illiger*, non *Fab.*

"This species, hitherto unrecorded as British, was taken somewhat plentifully by Mr. W. Farren, of Cambridge, under a dead horse in the New Forest, in the early part of the summer of 1860, in company with Dermestes murinus; hence it would appear to be a truly indigenous species, whereas D. vulpinus is in all probability introduced.

"It most closely resembles D. vulpinus, *Fab.*, from which it may be distinguished by the brighter colouring of the pubescence on the sides of the thorax, which is also conspicuously marked with a black spot at each hinder angle. Underneath the middle spot on the last segment of the abdomen is purely terminal, whereas in D. vulpinus, *Fab.*, the spot is produced for the entire length of the segment. In D. vulpinus, *Fab.*, the apex of each elytron forms a small acute mucro, which is entirely wanting in D. Frischii. The scutellum also appears to be of a much brighter yellow in D. vulpinus, *Fab.*

"It may be as well here to observe that the insect termed Dermestes tessellatus of Waterhouse's Catalogue is evidently the D. undulatus of Erichson and Sturm, and Mr. Waterhouse agrees with me in this opinion."—*J. W. D.*

ENTOMOLOGICAL CLUB.

February 18, 1862.—HENRY ADAMS, Esq., F.L.S., in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—Two boxes filled with Hymenoptera, 150 specimens of Zygæna Minos and 150 specimens of **Nyssia zonaria**; presented by **Edwin Birchall, Esq.** Twelve specimens of **Nonagria Bondii**; by **Dr. Knaggs.** A series of **Agrotis Ripæ** and a series of **Oporabia filigrammata**; by **George Mawson, Esq.** A pair of **Agrotis Ripæ** and a specimen of **Xanthia gilvago**; by **Mr. Henry Rogers.** A series of **Phryganidæ**, beautifully set, and all of them named in accordance with Mr. M'Lachlan's lately printed list; by **Percy C. Wormald, Esq.**

Mr. Stevens asked whether the munificent present from Mr. Birchall did not contain more specimens than were required for the collection.

The Curator said that the large number was sent more especially for distribution, every visitor to the cabinets on a Thursday evening being always invited to help himself.—*E. N.*

Scales on the Wings of Lepidoptera.—I am led to believe, from a number of observations I have made, that scales of Lepidoptera differ in the number of membranes of which they are formed, and in the granulations and striæ which cover them. When the scales are uninjured it is impossible to discover if they are composed of one or more membranes, but as we often find some with damaged portions, these defective scales permit us to study their formation. Scales covering the wings of Lepidoptera seem to be composed of two or generally three membranes or lamellæ placed one over the other. It is always upon the upper membrane that the granulations composing the colouring matter of the scale are found. The form of these granulations is generally pretty regular; they are rounded, and sometimes a little lengthened; their number is sometimes so considerable that the scale is entirely opaque. When striæ are observed it is always upon the second lamella that they are placed. It would be often very difficult to assert with certainty the existence of these striæ in a great number of opaque scales, did not the border, which on each side of the foot is generally transparent, permit their examination. Sometimes they are irregular, consisting of cylindrical fragments placed on the membrane at unequal distances, but always parallel; sometimes they are perfectly regular. These are either small parallel cylinders, clearly marked, and placed at equal distances, or equal parallel lines formed of granulations, like small round or oval pearls. It often happens that these striæ are alternately transparent and opaque. Sometimes there are small intervals divided into small squares. When the intervals are greater, the squares which they form are found transversely lengthened. On scales from P. Teucer, there are upon the striæ series of small pearls. It appears to me that in all the transparent scales upon which striæ are found without any appearance of granulation there are only two membranes. There can be little doubt on this point, when regular striæ, close to each other, are, so to say, soldered together. But when, as on the large scales found on P. Telemachus, and equally transparent, the striæ have very little adherence with the membrane receiving them, and are easily detached, the case is different. The striæ seen, and which often are over one hundred in each scale, are, when untouched, composed of little cylinders like harp strings, and when broken, like the same cords, they show the fractured extremities. Nothing in these scales at first proved to me the existence of a double membrane, and the intervals between the striæ, where they are wanting, never show any trace of a tear. This may, however, arise from the adherence of the two membranes. Fresh observations have convinced me that these two membranes really do exist, but that the upper one, upon which are the striæ, is so light that it is seen with difficulty, and only upon a few scales. The regular undulations which are often seen between the striæ, and which are sometimes wanting in the part where the striæ have been rubbed off, have much assisted me in forming this conclusion. If, as I have before said, the upper membrane carries the granulations forming the colouring matter, and rendering the scales more or less opaque, and the lower membrane is laden with striæ, then the existence of a third membrane must be admitted, otherwise the scales upon which are only seen striæ without granulations would have but one membrane, which is contrary to observation. It might be argued, without doubt, that it is possible that the same membrane might carry both striæ and granulations; and this belief might be strengthened by the examination of opaque scales partly stripped of their striæ, and where the spaces evidently show that both granulations and striæ have been removed. The discovery of certain scales showing similar defects has proved to me that this is not the case. In truth, the portion of the said scale upon which the granulations are found indicates clearly the existence of the upper membrane, of which the tear seen is a complete proof, and the removal of that portion which has been torn away lays open very regular series of striæ before concealed. It seems to me that this last portion presents the appearance of scales with striæ, and without granulations, and in which the existence of a double membrane is proved. It is also shown in the same scale in the spots where the striæ appear to have been removed. In fact, I am led to believe that three membranes exist in all scales, and that where there are no granulations the upper membrane is so transparent that it does not interfere with the appearance of the striæ. It often happens that the lamellæ of which the scales are composed, and which are united by a border more solid than the other portions, are tinged with a reddish brown, which appears at first sight to penetrate the substance of the membrane. In examining these membranes with a very high power, it appears that this tinge is due to a multitude of irregular points touching on the transparent foundation. Slight striæ, very difficult to observe, can also be perceived. It is probable that these granulations and striæ, often colourless, are always present, and according to the laws of the organisation of scales, the first upon the upper, the latter upon the lower membrane. After having described the use of the two upper membranes of the scales, I will now speak of the third. The lower surface of this lamella, or of the second in the scales, where only two are apparent, possesses, in all the diurnal and even in most of the nocturnal Lepidoptera, the power of reflecting rich and varied colours, always more beautiful than those on the insect itself. The rich and brilliant scales found in abundance in the various species of the genus Vanessa will alone show the most magnificent colours. The most remarkable in this respect of the indigenous species are Vanessa Antiopa, V. Atalanta, V. Polychlorus and V. Io. The scales of the exotic Lepidoptera, composing the genus Vanessa, Nymphalis, and many others, reflect colours perhaps even richer than those of the indigenous species. It must be remarked that it is generally upon the dark parts of the wings that the most brilliant scales are to be found. They are often opaque, and taken from any portion of the wing of the same insect; they never vary in colour, though they sometimes do in brilliancy, in the same species. The flutings of scales terminating in notches are often seen very distinctly upon these coloured lamellæ, but less so in the upper membranes. The same thing occurs with the undulations seen in the lamellæ, and which are often finely marked in the scales covering the bodies of the diurnal Lepidoptera. The lower lamellæ of a number of the nocturnal Lepidoptera also reflect very beautiful colours, though not to be compared with those of the diurnal Lepidoptera. The most remarkable species in this respect appertains to the subgenus of the Bombyces, those called "Ecailles." The genera Noctua and Sphinx have scales less brilliant, but perhaps from their soft and quiet colouring they are more beautiful. The upper surfaces of the wings of some of the exotic diurnal Lepidoptera exhibit portions of more or less size of a beautiful blue or brilliant green. These bright colours, the microscope shows, are due to a particular and special formation of the scales. The intervals between the striæ are pretty regularly transversely divided into longish squares. Each of these squares has a small circular cavity diminishing and rounded to the bottom, like the interior of a common mortar. The scales from the butterfly Ulysses, which is a beautiful blue, and those from Paris, a brilliant green, show these markings. It should be remarked here that the upper surface of scales of this description are more brilliant than the surface next to the membrane of the wing, just contrary to almost all other scales, as has been already shown. It should be observed that the colours of these beautiful scales are somewhat dull upon the butterfly, and have only all their brilliancy when seen under the microscope. Another property of some scales is that when they are examined by transmitted light they produce the brilliant reflections of precious stones. Numerous observations show that almost all scales, even those which are opaque, decompose light more or less when observed with the flame of a candle or a lamp. The scales which best produce this effect are somewhat rare. They are sometimes found in the diurnal butterflies upon the white part of the wing, especially when tinged with the blue or violet, such as are found in certain of the exotic Nymphalidæ. Among the numerous species of this genus I would cite the Bolina Alcithous and Lasinassa. Some of the nocturnal Lepidoptera have scales producing these brilliant colours. The most remarkable come from the genus Noctua. They are those which form the pearly or golden bands which are seen below their first wings on the inner margin, starting from the base. The inner margin of the top of the lower wing, and which is equally pearly or golden, has also very beautiful scales. The Noctua P. Gamma, or M. glyphica, are some of the best for this kind of observation. My investigations on the decomposition of the rays of light by the scales of Lepidoptera, have shown me that a portion of those which possess this property most effectually, whether opaque or transparent, have very fine and indistinct cylindrical striæ, covered by very crowded granulations. These granulations appear to add much to the beauty of the reflections, which are always more vivid than in scales without granulations, whatever may be the simplicity or transparency of the striæ. When the granulations are only semi-transparent, the reflections of the scales, which vary according to the direction of the light, are always very brilliant; if, on the contrary, they are only slightly opaque, these reflections are darker, but richer in colour. Some splendid examples of this kind are found in scales which have only the appearance of slight granulations and no striæ, such as those of the Nymphalidæ, Bolina, Alcithous and Lasinassa, of which I have already spoken. It seems to result from these different observations that the most brilliant reflections produced by the scales of Lepidoptera are due rather to the arrangement of their lamellæ than to the regularity and transparency of their striæ.—*Bernard Deschamps, in the 'Annales des Sciences Naturelles,' translated and communicated by A. G. Latham, Manchester, February* 17, 1862.

Lasiocampa Rubi bred in January.—Captain Russell states that he kept a larva of Lasiocampa Rubi in his study, which has a constant fire in it, and is very warm with a southern aspect, since October 8th, 1861. On November 27th it turned to pupa.

It ate nothing since November 1st, but made a sort of nest in the dry mould, where it lay coiled up, only exhibiting signs of life when breathed upon, being quite uncovered at the top: it emerged January 24th a perfect female.—*Alexander Wallace; 23, Bedford Place, February* 6, 1862.

Great abundance of Wasps in 1861.—Captain Russell states that in the autumn of 1861 the number of wasps in Chelsworth was enormous, that he himself assisted in taking 117 wasps'-nest in that parish, in order to check their depredations on the meat and sweets in the village.—*Id.*

Capture of Cryphalus Abietis and Cryphalus Piceæ near Market Harborough.—In May, 1858, I found some specimens of Cryphalus Abietis in a wood near this place, the only instance of its capture in England until last summer, when I had the good fortune to meet with it again in the same locality. I will also take this opportunity of recording the capture of a fourth species of the same genus, the Cryphalus Piceæ of Ratzeburgh. Of this last I met with a single specimen near Weston-on-the-Green, in Oxfordshire, in the month of October, many years ago, and, subsequently a second specimen occurred near the same spot. It is, I fear, my own fault that the Cryphalus Piceæ was not enumerated in Mr. Waterhouse's recently published List, although I fully believed that he had seen our specimens. C. Piceæ somewhat resembles C. Abietis, but may be known by the acuminate capitulum of the antennæ, which in the latter is nearly circular.—*A. Matthews; Gumley, Market Harborough, February*, 1862.

Notes on the Entomology of the Isle of Man.

By the Rev. Hugh A. Stowell, M.A.

(Concluded from p. 7901.)

Serica brunnea. A perfect pest at light in July and August, often accompanied by Aphodius rufipes. Is it generally known how thoroughly nocturnal in its habits this species is? In the neighbourhood of Faversham I was unaware of its existence till I tried Mr. Stevens' plan of after-dark sweeping, when I found that it swarmed upon ground which I had been in the habit of constantly exploring by daylight, without detecting a trace of it.

Limonius Lythrodes. Occasional; by sweeping meadows. May, June.

Cryptohypnus riparius. Abundant; under stones, often in very dry places and to an elevation of 850 feet. April, May.

Corymbites tessellatus. One example; in moss, &c. March.

Elodes marginata. Occasional; on sallows, &c., by brook-sides. May, June.

Malthodes brevicollis. Occasional; by sweeping meadows. May.

Rhynchites germanicus. Local but frequent; by raking. April, May.

Apion marchicum. Frequent; by raking. August, September.

A. Sedi. Abundant on Sedum anglicum (not S. acre, as at Deal and Southend), on the cliffs and under-cliff of the coast, but never found on its food-plant when it grows inland.

Apion scutellare. Frequent; on Ulex nanus, never, I think, on U. europæus. August, September.

A. immune. Rare; on Calluna vulgaris. August.

Strophosomus Coryli. This common species occurs frequently on Ulex here, and occasionally on Calluna, its usual food-plant, the hazel, not being found in this neighbourhood.

S. obesus. Rarely, and S. limbatus abundantly, on Calluna. April—October.

Sitones saturalis. Frequent; on Ulex. May—September.

S. cambricus. Rare; by raking. May—August.

Tropiphorus Mercurialis. Occasional; under stones. April, May. The *var.* (?) Terricola, *Newman*, is its only form here.

Phytonomus Polygoni. Frequent; by sweeping borders of corn fields. August, September.

P. murinus. Occasional; under stones. May, June.

P. Plantaginis. Frequent; by raking. May—September.

Cœnopsis (Trachyphlæus) Waltoni. Frequent; by raking. April—September.

Omias sulcifrons. Frequent; under stones and by raking. March, April. Rarely in autumn.

Erirhinus pectoralis. Rare; on sallows. August.

Miccotrogus picirostris. Rare; by raking. April.

Tachyerges Saliceti. Frequent; on sallows. May—August.

Orthochætes setiger. Occasional; by raking. April—September.

Acalles misellus. Frequent; by raking and sweeping heather. April—September.

Pachyrhinus 4-tuberculatus. Rare; by sweeping meadows. May.

Ceuthorhynchus Ericæ. Frequent; on Calluna. May—August.

C. quadridens. Occasional; on turnips in garden. April.*

C. Chrysanthemi. Rare; on Erodium cicutarium. August.

C. Litura. Occasional; by raking. August, September.

Orobitis cyaneus. Rare; by raking. May—September.

---

* On the same bed of turnips occurred Ceuthorhynchus sulcicollis and C. contractus in plenty; also Phyllotreta undulata, P. Nemorum, Plectroscelis concinna, Psylliodes Napi, P. chrysocephala and P. cupro-nictens.

Lema melanopa. Rare; by raking. April—August.

Chrysomela Banksii. Rare; by raking. April, May.

C. fucata. Occasional; on Hypericum pulchrum. June—Sept.

Adimonia Capreæ. Occurs on Calluna, no species of willow growing near.

Crepidodera Modeeri. Occasional; by sweeping moist meadows. May.

Mantura Chrysanthemi. Frequent; by raking. April—October.

Aphthona Euphorbiæ. Occasional; on grassy banks. March—June.

Phyllotreta undulata. Occasional; on turnips and by raking. April—September.

P. Brassicæ. Frequent; in moss, &c., and on moist banks. March—September.

Chætocnema aridella. Frequent; on moist banks. August, September.

Thyamis holsatica. Locally abundant; in moss, March; and on banks of a swampy pasture, September.

Psylliodes cupro-nitens. Occasional; on turnips. April.

Apteropoda Graminis. Rare; by sweeping borders of corn-fields. August, September.

Clambus Armadillo. Occasional; in moss, &c. March.

Comazus dubius. Rare; by raking. September.

Ptenidium apicale. Abundant; in moss, &c. February—April; September—November.

Pselaphus Heisii. Frequent; in moss, &c. March, April.

Bryaxis Juncorum. Very abundant; in moss, &c., on banks and by sweeping meadows. February—November.

Bythinus Curtisii. Frequent; in moss, &c. March, April.

Tychus niger. Rare; in moss, &c. April.

In conclusion, it may be interesting to note that of the 153 species enumerated by Mr. Wollaston as natives of Lundy Island (Zool. 897, 1753) 102 have been observed in the Isle of Man. It would be very instructive to be able to compare our Coleoptera with those of the Cumberland and Lancashire coast, the Mull of Galloway and the county Down, our nearest neighbours. Unfortunately, however, Mr. Hogan's valuable "Catalogue of Coleoptera found in the Neighbourhood of Dublin" (Zool. 4134) offers the only fair opportunity available for the purpose of comparison. From a careful comparison of the Dublin and Manx lists I obtain the following result:—

	Dublin.	Isle of Man.	Common to both.
Geodephaga	103	71	59
Hydradephaga	33	8	5
Brachelytra	103	94	51
Necrophaga	92	58	40
Lamellicornes	21	18	15
Sternoxi	14	11	9
Malacodermi	30	13	11
Heteromera	15	5	4
Rhynchophora	104	77	49
Xylophagi	2	0	0
Longicornes	5	0	0
Eupoda	49	33	22
Pseudotrimera	28	18	13
	599	406	278

On Raking for Coleoptera, &c.—Doubtless other entomologists besides myself are located in a neighbourhood where the sweeping-net can find but little employment in its own proper way. For their benefit the following note is penned. Our upland herbage is generally scanty and short; even the meadows are hardly "sweepable" much before midsummer. Hedges, moreover, are supplanted by banks, from five to eight feet high, originally compacted of sod and stone, but soon buried beneath a tangled vegetation of Aira and other grasses, foxgloves, sorrel, dog-violets, plantain, knapweed, bird's-foot trefoil, meadow vetchling, wood sage, Cotyledon Umbilicus, &c., so well guarded withal by sturdy gorse bushes and many-toothed brambles, that the strongest canvass is soon reduced to its component particles of thread if it rashly attempts to invade the repose of their weaker *protégées*. Now then for the way by which these tantalizing coverts may be compelled to yeild their insect treasures. A roomy sweeping-net and an ordinary garden-rake are the instruments, and a fine evening after sunset in dry weather the time of times for the sport. The net is to be thrust through the herbage till it reaches the earthen bank, and kept in position by the handle pressed against the breast or leg, according to the height selected for attack, thus leaving both hands at liberty to wield the rake. With it the herbage above the net is to be violently torn up and down, to and fro, until its iron teeth have scored the earth beneath. This to be repeated on new ground as often as desired, while daylight holds out. The immediately visible results of the process are grass, leaves, and bits of stick, earth and small stones. D not pause to examine these at the time; only, in order to prevent the bag of the net filling up too rapidly, take out a handful or two of the larger fragments after each rake, and, shaking them well over the net, throw them aside. All that remains to be done the same night is to close the net, and secure its neck somewhat above the contents with a piece of twine. Next day, gently emptying it, you will find on opening the net sundry larvæ of Noctuæ and Geometræ, which have crawled aloft as far as might be from the dusty *débris* below. These duly cared for, pour out a portion of said *débris* upon a newspaper; shake out, run through your hand, reject all large leaves, &c., pick out the stones, and then proceed very carefully to examine the finer *residuum.* It is only by the most close and patient search that such insects as Orthochætes setiger, Acalles misellus and Trachyphlæus Waltoni can be detected, so closely do they resemble the surrounding *débris,* and so perseveringly do they sham death. By the time that all its contents have been thus treated, the knight of the net, if as fortunate as I have been, will be astonished at the number of nocturnal species thus taken, whose presence in his locality was not previously suspected.

I desire, before laying down my pen, to add my testimony to the value of another mode of capturing Coleoptera, to which Mr. Douglas called attention at a meeting of the Entomological Society, some time ago, and which was also recommended by Mr. Scott in the 'Zoologist.' Any tolerably mild day in February or March, armed with a stout Wharncliffe blade and a good sized bag, proceed to the nearest swampy pasture, where the turf is old and mossy and rushy; if little hillocky tufts, rather drier than the surrounding swamp, stud its surface, so much the better. Wherever the moss grows long, especially on the said tuft-hillocks, cut below its roots and those of the grass, rushes, Luzula, Carex, Pedicularis, &c., that are intermingled with it, and deposit the little turfs as you cut them in the bag to be carried home and examined at leisure, which examination must consist not in merely shaking them but in tearing them in pieces over paper. In this way may be obtained many species, especially of Pselaphidæ and Staphylinidæ, in plenty, which will only be met with occasionally and singly when once they have broken up their winter quarters. As soon as the sun begins to wax powerful, as was the case here early in April, this year, this plan ceases to be worth trying.

HUGH A. STOWELL.

Christchurch, Manghold, Isle of Man,
December, 1861.

PS.—I find that in the remarks which commence this paper I have inadvertently omitted all mention of the bulkiest and perhaps the most important contribution to the Natural History of the island,—namely, the Rev. J. G. Cumming's 'Isle of Man; its History, &c.,' which treats very fully of its Geology, Palæontology and Meteorology. I ought also perhaps to have named the lists of Messrs. Doubleday and Waterhouse, as my authorities for the nomenclature employed for the Lepidoptera and Coleoptera respectively.

H. A. S.

February 13, 1862.

A Summary of the History of the Leporines.

By E. W. H. Holdsworth, Esq., F.L.S., F.Z.S., &c.*

The interest now generally felt in the question of hybridism, especially in the reputed successful inter-breeding of the hare and rabbit, induces me to send you an abstract of an important paper on the subject, which I have met with in the course of my inquiries about the experiments at Angoulême.

This paper is one of a series of four memoirs, by M. Paul Broca, "Sur l'Hybridité et sur les Métis du Lièvre et du Lapin," and published in the 'Journal de la Physiologie,' whose editor is the well-known physiologist, Dr. E. Brown-Séquard.

In the first two memoirs, M. Broca discusses the probable origin of the different races of dogs and men; in the third, published in July, 1859, he gives an account of the production of leporines, and his concluding paper is devoted to the results of hybridism, or interbreeding among the various types of the human race.

I shall confine myself to that embodying his observations on the hare and rabbit cross, his remarks being chiefly founded on the experiments carried out by M. Roux, at Angoulême, which had been made the special subject of his investigations.

Before speaking of the leporines, M. Broca makes some remarks on other authenticated hybrids, and points out that M. Chevreuil was mistaken in disputing the Rev. John Bachman's statement of the fertility of the cross between the goat and sheep. Every one who, under suitable conditions, had repeated the experiments of Buffon, had succeeded in producing such fertile hybrids; and if similar attempts in the Jardin des Plantes had failed, it was probably because, being kept closely confined, the animals had not enjoyed sufficient liberty;* but whenever a he-goat had been folded with sheep alliances and fertile hybrids had been the result. The author then refers to the success which has attended this cross-breeding in Chili, where thousands of "pellions," or the skins prepared with the wool on, are annually exported to Peru. These animals, as well as their skins, are called "pellions" in Chili, but are known elsewhere as "chabins," and are the produce only of the male goat and the ewe, the best wool being procured by recrossing the first generation of "chabins" with the sheep.

---

* Printed in the 'Field' newspaper, and kindly communicated by the author.

After referring to the more or less fertile hybrids between the camel and dromedary, the Llama family, the wolf and dog, &c., and among several species of birds, M. Broca says the decisive experiment must be made with nearly-allied animals, living in a wild state in the same country, but with different instincts, which prevent their crossing whilst in a free condition. These requirements the author believes to be perfectly satisfied in the case of the hare (*Lepus timidus*) and the rabbit (*Lepus cuniculus*).

No one, he says, can doubt these two animals being specifically distinct. They certainly differ less in their anatomical characters than many animals reputed to be of the same species; but their instincts, tastes and habits are so opposed, that it is impossible to confound them. The hare is solitary, the rabbit gregarious; the hare lives above-ground, and hides in the brakes; the rabbit burrows, forms subterranean colonies, where each family has its nest, and the young are sheltered during lactation. Gestation lasts thirty days in both species (?), but the hare has only two or three litters in the year, and from two to four young ones in a litter. The rabbit bears eight times annually, and on each occasion produces at least four young,—usually six or eight,—often more. The rabbit was early and readily domesticated. Young wild rabbits are constantly captured, and easily tamed. They reproduce in confinement, and become domesticated in the second generntion. All attempts, however, to domesticate the hare have entirely failed, some have been tamed, but have very rarely bred, and their descendants have been nearly barren. This sterility is complete in the female. Pregnant hares have been captured, and their young, born in captivity, reared artificially, but have failed to reproduce. The two species are natural enemies. The hare avoids the rabbit, and, although stronger, is generally worsted in a combat. Sportsmen well know that where rabbits are abundant there are few hares; and, if the latter are to increase, the former must be destroyed. These distinctions with others, external and internal, cannot be attributed to accidental influences, and no one has even imagined that two species so distinct could have had a common origin; yet they can be crossed, although only with the greatest difficulty.

---

* In a note, the author says, "I have authentic information that many species of animals, though kept pure, become barren after three or four generations at the Jardin des Plantes. Domestication rarely diminishes the fertility of animals, and even frequently increases it; but it appears that want of exercise, or the nature of their food, may, in many cases, impede reproduction. Perhaps, also, in the experiments at the Museum, the union of near relations has not been sufficiently avoided."

Buffon's unsuccessful experiments are then referred to, but M. Broca points out that in those cases no union was effected between the male hare and doe rabbit; with the contrary arrangement coupling took place, but there was no produce.

The first decided success in crossing the hare and rabbit appears to have been obtained in 1774, and an account of it was published at Milan in 1780. In this instance a young female hare was reared in company with a young rabbit of the opposite sex by the Abbé Domenico Gagliari, at Maro, in Northern Italy. When about seven months old, the hare produced two young—one resembling the mother, the other like a rabbit; a litter of four was afterwards born, and all the hybrids grew up. Some time after the rabbit died, but the hare continued to breed with her descendants, and they also reproduced *inter se.* The naturalist Carlo Amoretti investigated this case of fertile hybridism, and published an account of it at Milan, in a work devoted to science and art. M. Broca considers this experiment well authenticated, and says it is impossible to exaggerate its importance. He comes then to the experiment at Angoulême, conducted by M. Alfred Roux, President of the Agricultural Society of Charente.

The first attempts by M. Roux were made in 1847, but it is only since 1850 that he has seen his way clear, and proceeded on a regular system. The results he has obtained may be considered definite: these results are known to all the inhabitants of Angoulême; they are as important from an economical as from a scientific point of view, and yet, strangely, remarks M. Broca, they have not yet been published. Chance alone, in 1857, made M. Broca acquainted with them, and soon afterwards he went to Angoulême to see for himself. In March, 1859, he writes, "Now the establishment of M. Roux is in full prosperity. I have just made a second journey to Angoulême to satisfy myself; the leporines are in their tenth generation. The hybrid race is by no means etiolated, and the produce, on the contrary, are finer than at first. They are superior in beauty, strength and size to the two species whence they derive their origin. Apart from all scientific consideration, M. Roux has, then, obtained one of the most important practical results: he has created a new race, which promises to be of great service, and which probably will soon become generally distributed."

But if the practical experiment was concluded, there was still something to be desired by Science. M. Roux only endeavoured to produce the most profitable race, without considering the question of species, or the requirements of Physiology. These points M. Broca takes under his own consideration, after a long series of experiments have been tried. He now proceeds to describe what he saw and heard at M. Roux's establishment, and states that he cannot question the truth of M. Roux's information.

It is found that when a full-grown male hare and doe rabbit are placed together, the two animals usually fight to the death, or, if not, they never unite. Coupling does not even take place if animals only three or four months old are brought up together: it is necessary to take male leverets three or four weeks old, when they can leave their mother, and bring them up with domesticated rabbits of the same age, and to separate them from every other animal of their own species. The female rabbits, never having known their natural partners, believe the hares to be such, and *vice versâ*. The young hares become accustomed to confinement, and, under the influence of example, lose part of their wild instincts. When full grown the hares must be separated from one another, and one or more of the doe rabbits, reared in their company, given to them. The cross is then effected without difficulty. M. Roux had not tried the buck rabbit with the doe hare.

The domesticated rabbits chosen by M. Roux for his experiments naturally produce from eight to twelve young in a litter; united with the hare they rarely have more than eight little ones, sometimes only five or six, the number being generally intermediate between those of the parents.

To effect the crossing at his will, and not to exhaust the hares by too frequent unions, M. Roux separated them from the rabbits when they had once performed their duties. He also isolated, in as many separate cages, the females he intended for them. When he wished to effect the cross he placed the hare at nightfall in a cage with a rabbit in heat, and withdrew him the next morning: that invariably sufficed; union took place as certainly as between two rabbits. But it was observed that the hare—more continent or timid than the rabbit—never united by daylight, or even at night, if it saw any one near. M. Roux was therefore obliged to go behind the cage, and await with patience, and in silence, the particular moment. He was thus enabled to ascertain that—unlike the buck rabbit, or even the hare in a wild state—the tamed hare was very gentle in his advances to his strange partner.

The leporines of the first generation resemble the rabbit much more than the hare, and, altogether, might be easily confounded with rabbits. No advantage was gained by propagating this race: they bred *inter se*, and also with the rabbit; and, in the latter case, the produce appeared almost identical with the pure species. M. Roux believed this return to the rabbit was without any practical utility. It was, however, otherwise with a return to the hare. The leporines, the issue of the hare and a female of the first cross, are finer, stronger and larger than the animals of the pure species. These new hybrids, although three-quarters hare and one-quarter rabbit, appear directly intermediate between the two species, so that it may be said, other things being equal, the rabbit impresses its characters on the leporines more strongly than the hare. M. Broca calls these hybrids "quadroons" (*quarterons*), and says they are fertile *inter se*, but not very prolific —in this respect approaching the hare. Their litters consist only of from two to five young, and, to obtain a more productive race, M. Roux determined to recross them with the first generation of hybrids. This union results in a breed five-eighths hare and three-eighths rabbit, and is the one to which M. Roux gives his principal attention. The "three-eighths," as M. Broca designates this race, are quite as fine as the quadroons, and much more prolific. Their litters contain from five to eight young, which are reared without any difficulty, and are as hardy as the pure rabbit. They grow rapidly, and are capable of reproducing when four months old. Gestation lasts thirty days, and the young are suckled about three weeks. The female again receives the male seventeen days after littering. She may thus without difficulty bear six times in the year. This breed of leporines costs the least to bring up, and produces the most flesh for a given quantity of food; it consequently makes the best return.

M. Broca takes the weight of the domesticated rabbit and that of the hare reared in confinement as being each about 6 ℔s.; the "three-eighths" leporine, he says, when a year old, or sooner, weighs from 8 ℔s. to 10 ℔s., many reach 12 ℔s. or 14 ℔s., and one has attained even 16 ℔s. Leporines, at four months, are worth two francs each—double the price of the domesticated rabbit; and as they grow older the fur becomes very valuable, since it is finer than that of the hare. The author points out one curious character in the ears of the leporine. The young of all these breeds have one ear erect, the other hanging down; this peculiarity disappears with age in animals of the first cross, but is more decided and persistent as hare-blood increases.

Albino and angora varieties are sometimes produced among leporines as among rabbits, but they are not so frequent; the albinos have not been allowed to breed, as they are considered inferior animals. The angoras have been permitted to unite, but they do not breed readily; their litters are small, and the young are not always angoras.

All leporines, of whatever breed, have the flesh like that of the wild rabbit, that is to say, hardly deeper in colour than that of the domesticated rabbit; and the quadroons themselves, in this respect, are nearer the rabbit than the hare. It is worthy of remark, that the influence of the rabbit is even here predominant. The flesh of the leporines, however, has not the taste of either the wild or tame rabbit; it has a peculiar flavour, which is not unlike, says M. Macquet, that of the wing of a turkey. M. Roux has succeeded in producing leporines with only one-eighth rabbit in them, but only two were produced, and the experiment was not continued. M. Broca, however, expresses his intention to try some of his own experiments in this direction, with the view of ultimately obtaining a pure domesticated hare.

Upon the whole, continues M. Broca, although M. Roux has not satisfied all the requirements of Physiology,—though he has not entered in a register the particular genealogy of each of his leporines, —though he has not been anxious to perpetuate especially the hybrid race of the first cross, and has preferred, with an exclusively practical purpose, to cross it with that of the second blood, to create the more productive and more lucrative race of the "three-eighths," everything tells us that the cross of the male hare and female rabbit constitutes an example of hybridity fertile *inter se* (*engénérique*). Never, in uniting the hybrids of different bloods, either among themselves or with the others, has M. Roux found an instance of sterility. The limits of the fecundity of the first generation of hybrids are not ascertained, but it is known that the fertility of the three-eighths has continued for ten generations.

M. Broca is willing to admit, if desired by the advocates of the permanence of species, that the hybrids of the first generation have not been sufficiently studied; but, he asks, "What will they gain by the concession? Will there not always remain, between the two primitive types of the hare and the rabbit, the intermediate and lasting race of the three-eighths; a new race which returns to neither of the parent species, and which, fruitful with both, fertile also among themselves, will henceforth oblige zoologists either to throw into one species hares, rabbits and leporines,—a thing perfectly absurd,—or else to confess that new types may be produced by crossing animals of entirely different origins; that species consequently are not inviolable, that Nature has not raised between them insurmountable barriers, and that, in short, the classic doctrine of the permanence of species is altogether erroneous?"

M. Broca here concludes his account of the leporines. His object is to prove that crossing has produced several new races of animals, for he considers it impossible to attribute to climatic causes and accidental influences the formation of the races, so numerous and so diverse, which compose the family of domestic dogs; and that of the races, quite as different and as numerous, of which the human family is constituted. These questions he discusses at length in his other papers.

In the absence of direct information, I have before given my reasons for doubting the existence of the hare and rabbit cross; M. Broca's statements, however, are, I think, conclusive evidence in its favour, and I believe I cannot act more fairly than by sending you the above abstract containing the essential details of M. Roux's successful experiments at Angoulême.

E. W. H. Holdsworth.

Mildness of the Season.—In consequence of the extreme mildness of the season the birds have been exceedingly tuneful. Thrushes and hedge accentors have been in full chorus around my dwelling; the only bird I have missed during the winter here is the missel thrush, which used to sing regularly within a couple of hundred yards, and also in the "Old Well avenue of elms," in the town of Cheltenham. The number of petty sportsmen during the preceding winter is no doubt the cause of the disappearance of these birds: with the exception of a few days, in which frost occurred, there has been little cessation of the feathered choir since the end of October. The last week the cole tomtit has been giving us warning of vernal days, and the crocus has been in full bloom for several days—symptoms of premature spring. Thermometer for six days ranging from 45° to 57° in the shade. Birds in many places have commenced "nidification." In fact, but for the want of our migratory feathered friends, the poet's description is almost verified, for we have had already the "hum of bees," the "linnet's lay of love," and the "full choir that wakes the grove;" but how soon it may be all changed, when the north-east wind, arrives with its "blackthorn winter" in April succeeding—

> "Ask not the cause why sullen spring
> So long delays her flowers to bear,
> Why warbling birds forget to sing
> And winter storms invest the year."

I fully anticipate that the first six days of April may be ten degrees colder than those of February just expiring.—*H. W. Newman; Hillside, Cheltenham, February* 6, 1862.

Song of Birds.—The Linnean name of the garden warbler was omitted in my communication of January last (Zool. 7829): the bird is the Silvia hortensis.—*Id.*

Occurrence of the Common Buzzard at Rifley, near Lynn. — A fine adult male specimen of this bird was sent to me a few days back for preservation. The brown colour extended over nearly the whole body.—*W. Wilson; Lynn, January* 13, 1862.

Occurrence of the Short-toed Lark (Alauda brachydactyla) *and other rare Birds in Hampshire.*—It may be interesting to your ornithological readers to know that I have now in my possession a living specimen of the short-toed lark (*Alauda brachydactyla.*) It was caught by a birdcatcher in the neighbourhood of Southampton. It is now getting reconciled to its captivity; indeed, from the first, it was restless rather than wild. Not knowing anything of its domestic habits I placed it in a large cage, with perches, thus giving it the option of roosting either on a perch or at the bottom of the cage. It chose the perch, where it roosts on the same spot nightly, which makes it probable that when at liberty it roosts in trees. A tuft of grass is kept in its cage, but it does not appear to care for it. It spends the day in flitting from perch to perch, occasionally running along the bottom of the cage, from end to end. Not knowing what to feed it on, I at first supplied it with bruised hemp-seed and bread-crumbs, German paste, canary and maw seed; it appears to prefer the hemp-seed and bread, and does not eat the canary seed at all, and but little of the German paste. In order to gain its confidence, I give it daily a couple of meal-worms, of which it appears very fond. The way in which it treats the meal-worms is curious, and different from a fauvette who hangs in a neighbouring cage, and who, upon getting one of those dainties, gives it a pinch with his beak and a tap or two on the perch, and then bolts it whole; my short-toed friend, however, seizes the worm, pinches a hole in him near the head, and then sucks out the entire contents of its interior, leaving the skin perfectly empty! The only sound it has as yet favoured me with, is a clear and silvery call-note. Never having seen one before, I am unable to decide if it be male or female. In Morris's 'British Birds,' the male is described as having "chin, throat and breast, *white.*" Now my bird has no white anywhere about it, save the two outer feathers on either side of the tail. The chin, throat and breast are of a lighter tint than the back, but by no means white. It may be a female, or there may be a change of plumage in the winter. In other respects the description answers well. The attitude and expression of the portrait in that work are decidedly good; the colouring not so good. The appearances of the short-toed lark in Great Britain seem to have been few and far between. The man who caught the one I have had once taken another ten years ago. I have looked through the nineteen volumes of the 'Zoologist,' and the only notices of its appearance there recorded are one in Sussex in 1854, in the possession of Mr. Swaysland, of Brighton, and one shot at the Scilly Islands, by Mr. Augustus Pechell, in the same year. The only other British specimen I can hear of is the one mentioned by Mr. Morris, in his 'British Birds,' as having been caught in a net near Shrewsbury, in October, 1841. In volume 6th of the 'Zoologist' (Zool. 1958), the Rev. C. A. Bury mentions seeing it in the South of Spain, and in volume 15th (Zool. 5357), Lieutenant Irby records it as being found in the Crimea. I may, therefore, think myself fortunate in adding so rare a bird to my collection of British songsters. I have this winter caught in my garden here a fine male mountain finch (*Fringilla montifringilla*) and a male cirl bunting (*Emberiza cirlus*). I have also a male and female hawfinch (*Coccothraustes vulgaris*). The female I had last spring, and in May she laid three eggs in the cage, which was remarkable, as she had been in captivity since the preceding autumn. I hope this year, by turning the pair into a small aviary, they may be induced to breed. I have also three crossbills (*Loxia curvirostra*), which are very tame and amusing birds. Both the hawfinch and crossbill generally visit this county every year: I suspect the former breeds in certain parts of the New Forest.—*J. Pemberton Bartlett; Exbury Parsonage, Hampshire, February* 3, 1862.

Note on the Shore Lark (Alauda alpestris) *and Little Owl* (Strix passerina) *in Norfolk.*—In the 'Zoologist' (Zool. 7845), I recorded the capture of three shore larks on our coast between the 9th and 12th of November last. Since then two more have been killed at Sherringham, and these, like the previous specimens, proved on dissection to be male birds. Of the two last, obtained on the 9th or 10th of January, one was evidently older than the other, with a perfect black gorget and bright yellow tints on the throat and neck, the horns well developed and the cheeks black. The forehead, however, was more white than yellow, with a very indistinct black band, mixed with yellow on the upper part of the head; the points of the wings vinous. The younger specimen had a smaller gorget, each black feather being tipped with yellow, the black on the cheeks also blended in the same manner. The horns slight, but quite distinguishable; no perceptible band across the head; forehead yellowish white, and several reddish longitudinal spots on the breast, immediately below the gorget. It is worthy of remark that on the 15th or 16th of November, only three days later than the last specimen was procured in this county during the same month, three shore larks out of a flock of five were netted near Brighton, as recorded by Mr. G. D. Rowley in the last number of the 'Ibis.' An adult male of the little owl was taken alive on board a fishing smack during the first week in February. This bird was brought into Yarmouth for sale, and on the 7th inst. was sent up to Norwich to be stuffed. The plumage was ragged and dirty and the stomach quite empty, occasioned most probably by the bird having been placed in some box or cage, where it had refused all nourishment in its fruitless efforts to escape. The last specimen of this rare little owl that occurred in Norfolk was also taken alive, in 1846, by Mr. J. H. Gurney's gamekeeper at Easton, near Norwich.—*H. Stevenson; Norwich; February* 19, 1862.

Occurrence of the Crossbill in England.—This being anything but a rare visitor, I conclude that the particular notice of it of late in the 'Zoologist' is to show how widely and generally it is spread oper the country; I have therefore to record that I observed one a few weeks since in my garden, feeding in the sycamore trees, up the branches and twigs of which it climbed in a somewhat parrot-like manner, the body frequently reversed or suspended. It was allowed to depart unmolested.—*Henry Hadfield; Ventnor, Isle of Wight, February* 15, 1862.

Gatherings of Magpies.—With regard to the flocking together of magpies, as recorded by more than one correspondent in the 'Zoologist,' I may perhaps be permitted to point out that this habit (though observed at a different season) is referred to by Gilbert White ('White's Selborne,' p. 175): "I observed in my garden that several magpies came determined to storm the nest of a missel thrush." The editor observes: "In various places in England and Ireland, a reward is given for their heads at Quarter Sessions." Never having heard of an instance in this division of the county, I am inclined to believe that such a custom, if it ever prevailed, must have long fallen into disuse; this, together with the less strict, or less general preservation of game of late years, may account for the greater abundance of the magpie, as well as its gregarious habits becoming more observable.—*Id.*

Three Ravens feeding on a dead Hare at Higham. — On the 15th of October I shot a hare at Higham, in Suffolk, which was not picked up, and our keeper on going round, about three weeks afterwards, found three ravens devouring it, one of which he shot, and this is now in my possession.—*W. L. Barclay; Knott's Green, Leyton, Essex, February* 22, 1862.

Notes on the Spotted Woodpecker. By HENRY L. SAXBY, Esq.

IN remarking the unusual abundance of this bird in Cambridgeshire last autumn, Mr. Saville inquires (Zool. 7847) whether it has been as numerous in any other neighbourhood. With regard to its occurrence in Shetland during the months of September and October, I beg to offer such information as may be gathered from the following particulars:—In a recent number of the 'Zoologist' (Zool. 7754) I recorded the capture of two specimens of the spotted woodpecker (*Picus major*) in the island of Unst. During the next few weeks many more were killed, not only in Unst but also throughout nearly the whole extent of the Shetland Isles: the wind was blowing steadily from the south-east at the time. I am also informed that at about the same time several were killed in Orkney.

The sudden and almost simultaneous appearance of large numbers of this species in various localities, where it is evidently considered an uncommon visitor, is a fact well worthy of the attention of ornithologists, inasmuch as a careful investigation might tend to throw considerable light upon the question of migration. It would be interesting to ascertain the proportion of the sexes among those specimens which were obtained, as well as the direction of the wind at the time of their arrival.

Having heard that woodpeckers only attack such trees as are unsound, I was at first unwilling to kill more than the two already mentioned, but as the leaves began to fall, observing that large portions of the bark had been stripped from some of the healthiest and most vigorous of the trees in Dr. Edmonston's garden at Halligarth, I at length obtained a very reluctant permission to shoot as many of the unfortunate but mischievous birds as ventured within the forbidden enclosure. To those of my countrymen in Old England who have never wandered far from their own green woods, and to whom the loss of a few small trees would be a matter of little importance, the above may appear a somewhat cruel proceeding, but for all that it was a necessary one, otherwise it would not have been sanctioned by Dr. Edmondston, who is too thorough a naturalist to countenance anything like wanton destruction of life, and who, it should be borne in mind, has for the last twenty years and upwards been very successfully endeavouring to introduce trees and shrubs into the island, notwithstanding the ill-natured ridicule with which his early attempts were received by certain of the inhabitants who ought to have known better. Having thus so far justified myself, I will confess that no less than seven birds fell to my gun alone; besides this, many others were brought to me from various parts of the island, but, strange to say, not one female was to be found among them, and with one single exception all were first-year's birds.

The first two presented nothing unusual in their appearance, but on taking the third one into my hand, I at once remarked the worn look of the bill, tail and claws. I immediately suspected that this was caused by the scarcity of trees having driven the bird to seek its food among stones and rocks, and, upon opening the stomach, my suspicions were confirmed by the discovery, among other insects, of several small beetles which are found only upon the hills.

I may mention that these beetles are very abundant in Shetland, although I do not remember having seen any of the kind in England: they are about the size and shape of one half of a split-pea, black, edged with scarlet.

I afterwards saw spotted woodpeckers on various parts of the hills, on walls, and even in high sea-cliffs; I also saw them on roofs of houses and upon dunghills, and although several were killed upon corn-stacks I never found any grain in the stomach. They were frequently to be met with upon the ground among heather, where at all times they were easily approached, but more particularly in rainy or misty weather, when their plumage becoming saturated with moisture and rendering them too heavy for a long flight, many were stoned to death by boys.

Those in the garden fed largely upon seeds of the mountain-ash, which they broke open the berries to procure, sometimes dropping a whole cluster upon the ground and descending to feed, but more frequently breaking the berries to pieces as they hung upon the trees. But even in the garden they did not confine themselves to the trees:

at one time they might be seen busily searching among moss and dead leaves; at another, in the midst of a tuft of coarse weeds; and again intently examining the spider's webs upon the walls.

It was quite a common occurrence to see them in open meadows scattering aside the horse-dung with their bills, and thus procuring abundant supplies of worms and grubs. I once crept very close to one thus engaged, and was amused to observe how cleverly it used its bill, first striking off large masses, and then dashing them into fragments in all directions by a rapid and peculiar movement of the head from side to side. Although *telescopic* evidence is usually of a somewhat doubtful nature, yet I spent many a happy half hour in observing these interesting birds by means of a powerful pocket-glass. In this manner I could see them climbing the face of a large rock or of a rough stone wall, curiously peering into every crevice, and occasionally varying the amusement by a smart tap or two upon the unyielding surface of the stone.

I once saw two upon the ground engaged in desperate combat, tearing, fluttering, and tumbling about in a most comical manner, at the same time uttering a shrill noise which was half scream and half chatter. Upon my approaching a little too near, they hastily took wing, and were immediately afterwards to be seen perched upon the top of a neighbouring rock, enjoying the warm sunshine, and apparently already in happy forgetfulness of their "little difference." The longer the birds remained in the island the more worn their tails and claws became, but it was only in a very few instances that any injury to the bill could be detected.

I carefully dissected several of the victims above-mentioned, but without observing anything particularly worthy of note, with the exception, perhaps, of the large size of the cutaneous nerves, and the closeness with which the skin adhered to the body. I should be glad to ascertain whether these peculiarities have been remarked in the green woodpecker, for possibly that bird's well-known susceptibility to atmospheric influences may thus be in some measure accounted for, though why such a peculiarity should be so strongly developed only in certain genera is a question of a totally different nature, and one upon which I will not at present hazard my own imperfectly-matured conjectures.

Henry L. Saxby.

54, Gilmore Place, Edinburgh,
February 1, 1862.

Food of the Wren.—Under this title Mr. Doubleday calls a statement of mine, made in an article read before the Literary and Philosophical Society of Liverpool and published in the 'Proceedings' of that Society, an error. The majority of the patrons of the 'Zoologist' will probably not have read the article, so that I may perhaps be excused for quoting the passage in question here, and making a few remarks upon it. "In winter, this bird, though so small, feeds extensively on snails, extracting them from the shells in an ingenious manner. When a snail is found, it is conveyed to a selected stone, and tapped upon it until the shell breaks, or the animal otherwise becomes detached. It is then easily taken out and devoured. The same stone will often be resorted to for a long time, so that a considerable number of shells will frequently be accumulated. These remains may often be noticed, and as often perhaps have puzzled the beholder." I have certainly never watched the wren operate upon a snail, but I have often seen more or less of broken shells round a stone in spots where I never saw a thrush, and that in places where the thrush would not be likely to frequent. These accumulations of broken snail-shells are not infrequent on the Cheshire and Welsh sand-hills, sometimes occurring near the margin of the shore at a long distance from even tree or bush. A wren generally frequented the neighbourhood of each of these localities, and was constantly seen near the broken fragments. This, of course, is not conclusive evidence, but it is presumptive. With regard to Mr. Doubleday's remark, "that a wren could not by any possibility break the shell of a snail, and if it could detach the animal in any other way it would not swallow it." I fancy that the wren could break a snail's shell by tapping it on a stone, and that it could devour the animal, not by swallowing it entire, but by eating it piecemeal. No one would suppose that the blue tit could swallow a thrown-out bone, yet this bird often feasts on these remains. The raven also gorges himself upon a sheep's carcase, yet who would say that he takes it entire. Concerning Mr. Doubleday's remark as to wrens congregating to roost, I beg to say that these birds are no rarity in Lancashire and Cheshire, and to quote my statement on the subject. "In winter, also, wrens congregate in numbers in warm sheltered roosting-places. At dusk, the observer, by remaining quiet, may see them coming singly from all directions to a favourite haystack. On arrival, they locate themselves in holes previously made round the sides by their own species, or other small birds. By going after dark, the observer may sometimes take them by the dozen in a handful from one hole." I have caught numbers in the way described, and, in one instance, I remember almost filling the pockets of my then boy's clothes out of a few holes in a stack; I afterwards let the birds go. In support of my statement that wrens do so congregate, I need only refer to Yarrell on the subject; to a note in the 'Zoologist' (Zool. 564), by S. H. Haslam; to a second note in the 'Zoologist' (Zool. 4702), by Jonathan Couch; and to a third in the 'Zoologist' (Zool. 5516), by S. C. Tress Beale.—*James Fitzherbert Brockholes; Puddington, near Neston, Cheshire, February* 19, 1862.

Deposition of Eggs by the Cuckoo.—The following passage occurs in the preface to the 'Zoologist' for 1861:—"Ornithologists have not yet shown us how the cuckoo's egg is introduced into nests which, from their situation, the cuckoo herself could not enter." I think there can be little doubt to the reflecting mind that the only method by which the cuckoo *could* by any possibility effect her object in the cases referred to is by taking the eggs in her beak; there never having been a nest (as far as I am aware) found with a cuckoo's egg in it, into which the mother-bird could not have stretched her head and neck for the purpose of depositing an egg. This idea is as old as the time of Le Vaillant, and all that was needed to demonstrate its truth was the actual discovery that the cuckoo has power to carry its eggs in its beak or throat. It so happened that I was present at a meeting of the Dublin University Zoological Association some years ago, when the fact of this discovery was announced in a paper by Professor Kinahan, and established to the satisfaction of every one present. He actually squeezed the egg out of the throat of a living cuckoo, shot upon the wing. The account was published in more than one form at the time, but must I suppose, have escaped either the eye or the memory of the editor of the 'Zoologist;' so I doubt not that he will be glad to see it produced again for the benefit of his readers. I quote the following from the 'Natural History Review,' vol. 2: Proceedings of Societies, p. 25:—"At Clondalkin, on the 17th June, 1848, I had, while in company with my friend Dr. W. Haughton, the pleasure of having the truth of Le Vaillant's theory, concerning the manner in which the cuckoo deposits its egg in its future niches, entirely confirmed. My friend succeeded in winging a female cuckoo as she was rising; she fell into a ditch, owing to the depth of which several minutes elapsed before we could get her out. Having obtained the bird, I proceeded to kill her, by pressing on her breast, having my thumb on the cavity formed by the *os furcatum*, when I felt something slip from under my thumb, with a gurgling sound. Dr. Haughton, attracted by the sound, turned at the same moment, and we both saw an egg in the act of falling to the ground, from whence I picked it up, perfectly uninjured. This egg agrees with all descriptions I could obtain, and on being shown to Dr. Ball, he at once recognized it as a cuckoo's. On dissection, by Professor Allman, the bird proved to be a young female, and had in her ovary two full-grown eggs, one ready to pass into the oviduct. No remains of eggs could be detected in her stomach, even when examined with a powerful microscope. Full details may be found in the Appendix to 'Thompson's Birds,' p. 442. The egg and the skin are in the collection of the Dublin Natural History Society." I have quoted Professor Kinahan's own words, and I do not think anything can be more clear and satisfactory than the account he gives. I do not see how any one, however sceptical, can set aside the facts thus detailed. To say that the occurrence was accidental would be absurd; for what accident could induce a cuckoo to have, *contrary to its habits*, an egg of its own, whole and uninjured, in its throat when on the wing? I hope that if any ornithologist who may read this note should know of any facts, tending to confirm the above, he will not neglect to bring them forward.—*A. R. Hogan; Puddlestone, Dorchester, February*, 1862

Occurrence of Caprimulgus ruficollis in England.—On the 6th October, so far back as 1856, I obtained a fresh-killed specimen of this rare European goatsucker, of Mr. Pape, game dealer, of this town. It was shot the previous day at Killingworth, near Newcastle. I could not determine the sex from dissection, but I think it is most probably a male, as the first primaries have each a spot upon their inner webs, and the first two spots are white. I have delayed until now making this announcement, for I found, on comparison, that the bird in question differed slightly from a Hungarian specimen in my collection, and I was consequently anxious to see others before doing so. I have now had an opportunity of referring to a specimen in the British Museum, and find that it quite agrees with my bird. I have, therefore, no longer any hesitation in stating that it is the true Caprimulgus ruficollis of authors; and I have much pleasure in adding this fine species to the British list of occasional visitors, though I am far from believing that this is really its first occurrence in our island. It very closely resembles the C. europæus, and is almost sure to be confounded with that species by the casual observer.—*John Hancock; Newcastle-on-Tyne, in 'Transactions of the Tyneside Naturalists' Field Club,' Vol.* v. p. 84.

Nesting of the Chimney Swallow.—This pretty bird is, in my opinion, erroneously called the chimney swallow, because it is by no means partial to that place as a place for building in. Last year two pairs built their nests in my stable, and as they are generally locked up the only mode of entrance was through a slit (a brick in length and breadth) at one end of the building. One pair built a nest upon a rafter, in shape and size about that of a basin. To render it secure the parent-birds made a good foundation on the wood, and the clay or composition of which the nest was built was continued down each side of the rafter, evidently with the intention of rendering the nest perfectly secure. This pair succeeded in getting five young ones away. The other pair built their nest at the other end of the stable, and they placed it, by the side of a large rafter, the rafter forming one side of the nest, which was open at the top. This pair laid two eggs and then deserted them. The end of the stable where this nest was contained the firewood and coals, consequently the birds were frequently disturbed, which may account for their desertion. In 1854 and two following years, a pair built their nest in the bell-tower of the chapelry and school at Appleton-le-Moors, in the North Riding of Yorkshire. The nest was so situated that every time the bell rang it swung within six inches of it. The bell was generally rung four times a day, and frequently oftener. In 1856 the nest was destroyed by a mechanic, who had to go up to the bell, and the nest, which was kept for some time in my study, had a very sickly smell; it smelled strong of some saline matter. During my stay in the village, there never was another nest built there. Last year a pair began to build a nest in a shed in our back-yard. The shed at the eaves was only four feet high, and, being in constant use, they were too frequently disturbed to finish the nest, but finally took possession of the chimney of an outhouse. On the north moors of Yorkshire their nests are very common in the outhouse of the farms and in field-sheds.—*J. Ranson; York, February,* 1862.

Migration of Swallows.—On the 2nd of November, 1861, I observed, towards sunset, more than a dozen martins alight on a neighbour's house, and enter, one by one, a small hole under the eaves. On the following day, between four and five o'clock, I saw twenty-two martins hawking flies before retiring to roost. They were first seen at a considerable distance and elevation, but gradually descending and contracting their circular sweeps as they approached their roosting quarters, and, apparently aware that but few minutes of daylight remained, exerting their utmost powers of wing to snap up every stray fly. Occasionally a few, detaching themselves from the main body, dart off with a direct flight till lost in the distance; but a little before 5 o'clock all had reassembled and began to inspect their dormitory, creeping in at the narrow aperture in an awkward, hurried manner, till satisfied that all was safe. Seeing them to roost is a trial of patience, for after watching them in one by one—it may be for the twentieth time—out they come again, as if scared by some vampyre inhabitant of their dark retreat. The whole scene has then to be reenacted, but in a still more confused and hurried manner. There was now a general scramble: some were to be seen clinging round the opening; others were endeavouring to fly in. A few relaxing their hold or missing their footing were compelled to take another sweep to regain their lost position. The thermometer had at the above hour fallen to 47°. The martins were occasionally observed, but in smaller numbers, up to the first week in December. I have reason to believe that they were all birds of the season.—*Henry Hadfield; Ventnor, Isle of Wight.*

Early Appearance of the Swallow.—On the morning of the 4th of February, whilst walking out, I observed a swallow flying about quite as active as if it was July. That I am not deceived I am quite certain, as I watched it for upwards of five minutes. I may state that the weather here has been very mild and warm for the last two weeks, and the sun was shining brightly at the time.—*George H. Parke; Halifax, Yorkshire.*

[I think this bird could not have been a this-year's arrival.—*E. N.*]

Occurrence of the Little Bustard in Yorkshire.—A fine mature female specimen of the little bustard (*Otis tetrax*) was shot on Friday, the 31st of January, at Leven, in Holderness, East Riding of Yorkshire, by Mr. Hudson, gamekeeper to the Rev. Canon Wray of that place. It was feeding in a turnip field.—*W. W. Boulton; Beverley, February* 1, 1862.

Re-examination of Sabine's Snipe.—Since I communicated to you the capture of Scolopax Sabini in the central part of Cornwall, I have had an opportunity of re-examining the bird with Mr. Gould, and discussing the merits of the points at issue as to its specific value. One great character of distinction, as I before told you, is extinguished in this specimen, *viz.*, in the number of its tail-feathers being undoubtedly fourteen and not twelve. There can be no doubt that the striking tone of uniform dark colour pervading the whole upper and lower surface of the plumage is calculated to startle any observer as to its identity with our common snipe, but I think Mr. Gould has quite made up his mind as to its being only a variety, and not specifically distinct. It may be urged that all the specimens hitherto obtained of S. Sabini have agreed in their general tone of colouring, without showing any intermediate plumage characters of the common snipe in the partial development of the dorsal longitudinal lines and the white under surface, but it is well known that all birds, in assuming a dark variety of plumage, exhibit a general uniformity over the entire plumage. I adduce by way of familiar examples the dark varieties of bulfinches, larks, sparrows, &c. It so happened, in corroboration of this argument, when Mr. Gould was examining this specimen in Mr. Vingoe's laboratory, that there was at the same time before him almost a black variety of the male Montagu's harrier, killed near Helston, and on examining the under surface of the wings of this specimen, the entire dark tone prevailed, without the slightest vestige of the rufous markings peculiar to the male of this harrier. There is, therefore, a strong probability that the specimens may all agree in colouring without thereby establishing a specific distinction.—*Edward Hearle Rodd; Penzance, January* 17, 1862.

Correction of an Error.—In the article on Scolopax Sabini (Zool. 7882) you will observe a very palpable error in the insertion of the word "not," the seventh line from the bottom. I am made to say that "I had little hesitation in *not* thinking the bird a distinct species," &c., or words to that effect, but I am writing without the book before me. It should be, "I had little hesitation *in thinking*," &c.—*Id.*

Variety of Snipe.—I have lately examined two examples of the large brown variety of snipe, so accurately described by Mr. Rodd (Zool. 4704). One of these birds, killed at Dartmoor in December last, quite equalled in size some specimens of S. major, but differed from that species in having the belly white and only fourteen feathers in the tail. The general markings were very similar to those of the ordinary sized common snipe, but the plumage was altogether of a more ruddy cast, and the light stripes on the scapulars narrower and much less conspicuous. The bill and the tarsi especially appear very short when compared with the large size of the body. I observed that the second quill-feather of the wing was the longest, which is not the case in the common snipe, the first primary having the advantage almost invariably. This might probably be the result of age, but the wing of the variety mentioned appears altogether short. All sportsmen who have killed the bird remark that it rises without noise. This variety has puzzled me for many years.—*John Gatcombe; Wyndham Place, Plymouth.*

Occurrence of the Green Sandpiper at Leyton.—Specimens of this bird have been observed in this locality almost every autumn, and two have been killed this season. The first was in October, and the second on the 8th inst. It is an extremely good one, and is now in my possession.—*W. L. Barclay; Knott's Green, Leyton, Essex, February* 22, 1862.

Occurrence of the Egyptian Goose near Dublin.—On the 8th of last December I shot a fine specimen of the Egyptian goose (*Anser Ægyptiacus*) near Dublin. I mentioned this to Dr. Carte, Professor of the Dublin Society, who said that it must have been a domesticated bird. When I first observed it, it was flying from the east, straight for the shore, but as soon as it perceived me it turned for the south-east, in direction of some rocks called the "Muglins," when I fired. It then turned again towards shore, and fell in the sea, when I picked it up. Whether it ever had been domesticated I cannot say, but it appeared decidedly wild when I killed it.—*H. Blake Knox; Bartragh, Dalkey, County Dublin.*

Pochards in the Serpentine.—Yesterday I saw two and to day eleven pochards in the middle of the Serpentine, opposite the boat-house. Whether these were genuine wild birds, or birds bred in the Zoological Gardens or St. James's Park (see Zool. 6922), I will not pretend to say, but from their number I think it is most probable they were the former. I have seen no pochards on the Serpentine for many years, except two wretched pinioned birds about two or three years ago, which of course disappeared in a very short time. Putting crippled birds in the Serpentine, to be harried to death by the boats, bathers, fishers and dog-swimmers, is a species of cruelty which ignorance alone can justify.—*Henry Hussey; 7, Hyde Park Square, January* 23, 1862.

Occurrence of the Little Gull and Little Auk near Lynn. — A fine specimen of the little gull was shot at St. Germains, Lincolnshire, in November, 1861: it is now in the Lynn Museum. A fine specimen of the little auk was also shot at Lynn.—*W. Wilson; Lynn, January* 13, 1862.

The Little Gull. — I have been fortunate enough to obtain two specimens of this pretty bird lately; one a young male, shot off Brighton early last year (see Zool. 7387); the other a fine adult female, shot at Freshwater, Isle of Wight, by Mr. H. Rogers, on the 21st of January last. The plumage of this specimen differs much from the young bird; the whole of the upper parts are one uniform pearly gray; the quill-feathers the same, except the tips, which are white; the back of the head and neck is mottled a good deal with black; the tail and rest of the plumage pure white; while in the young bird the shoulders and some of the scapulars are black, forming a broad band; the quill-feathers black, with the inner margin and the tips white; the back pearly gray, with a black patch on the hump; the tail white, broadly tipped with black; the throat, breast and under parts pure white; the feet and legs, in the adult, bright red,—beak reddish black; in the young bird the feet and legs dirty cream colour,—beak black. There is a difference in the under parts of the wings in these birds that I do not recollect to have noticed in any other gull; the quill-feathers in the adult bird are dark lead-colour, with the shaft and tips white; in the young bird the same feathers are white, with a narrow stripe of black on each side of the shaft, which is white, the ends black, with a minute speck of white at the extreme point of each feather.—*Frederick Bond; Kingsbury, February* 20, 1862.

Occurrence of the Little Gull at Plymouth — A very interesting specimen of the little gull was killed in Plymouth Sound on Monday, February 3rd. It was fishing in company with several common gulls, and mistaken by the person who shot it for a tern; but ultimately it fell into the hands of a person who knew better, and was thus fortunately preserved. The specimen was a female, in excellent condition, weighing 7 ounces. The contents of the stomach was not examined, but in the gullet was found a fly. Having been obtained so late in the season, the plumage, though immature, was very interesting. Notwithstanding dark markings on the wings and a broad black band on the tail, the black head of the breeding season was already partially assumed, dark feathers appearing on the cheeks and throat, forming a complete circle round the neck,—showing how far that colour would have extended, and also that the little gull attains the black head very early in the spring, and before it has arrived at perfect maturity. The bill was black, the legs flesh-colour, and the length of wing from the carpal joint 8½ inches. The bird is now in the collection of Mr. T. C. Hingston, of Plymouth.—*John Gatcombe; Wyndham Place, Plymouth, February* 15, 1862.

Breeding Habits of the Petrel. — The Rev. I. Ambrose, of Halifax, N.A., in a letter read to the Boston Society of Natural History, U. S., communicates some interesting particulars relative to a visit to Green Island, about ten miles out at sea, off the mouth of Chester Bay, Nova Scotia. He landed on the north side of the island. Not a puffin or any other kind of bird was to be seen, save a large number of "steering" gulls and some "mackerel" gulls flying overhead; whilst the whole island under foot was perforated and undermined by the petrels. He says:—"I first took a tour all round the grassy edge of the cliffs to look for gulls' eggs. I got two dozen of the steering gulls' eggs, and the men eight dozen. Tore up the turf with my hands, following the little galleries with my fingers, and soon secured four dozen and a half of petrel's eggs, and two of the parent birds as specimens. I could have obtained, I suppose, a thousand dozen of the eggs if I had wished, and every mother bird with them, as the poor little things crowd back into their holes, making not the slightest noise or resistance whilst they beheld the roof rudely torn from their dwelling and their eggs taken away. In no instance, except one, did I find more than one egg in a nest, and in that there were but two; and yet some of the birds were hatching, as some of the eggs contained the embryo, with its head and body so far developed as to clearly identify the species. The smell of the birds is at first very offensive; indeed we perceived it at a distance of two miles from the island. This smell is not occasioned by any decayed fish or other extraneous matter, as the nests and surrounding turf are invariably very clean, the nest itself being lined at the bottom with a very little dry fine grass. The odour is peculiar to the bird and its egg, and is particularly perceptible in the dark brown oily fluid which, seemingly in self-defence, these birds eject from their bills. The sun was just rising when we landed on the island; and although we had seen several petrels flying about the boat in the night and at dawn of day on our passage, yet on the island not one was to be seen: all were underground, where at first you could hear them twittering, as if arranging about nests and accommodation; but soon after sunrise they became almost entirely silent, at least so far as the screaming of the gulls, which was always about the same, would enable you to judge. On taking a petrel out of its nest it would not, on being set down, attempt to fly at first, but would endeavour to dig its way down into some of the broken holes. Most of the nests seemed to be old ones newly fitted up, and I found several such where the bird had brought quite a sprinkling of fresh dirt to the surface. They seem to form their galleries not so much by carrying out the surplus dirt, however, as by pressing themselves through the soft turfy soil. A great many ants had made their nests among the galleries, but did not seem to incommode the birds; perhaps, indeed, they serve them for food at times."—*S. P. Saville; Dover House, Cambridge, January* 14, 1862.

An Unexpected Arrival.—In one of the compartments of the reptile-house, in the Zoological Gardens, there has lived for many years a fine specimen of the West African rock-snake (*Python Sebæ*). It is now at least nineteen feet long, and about twenty inches in circumference at its thickest part. Its companion, a snake of the same species, but of much smaller dimensions, has been associated with it for, I believe, the last two or three years, and the two reptiles have lived together in the utmost amity. On the morning of the 12th inst. it was discovered that the large snake had, during the previous night, deposited about a hundred eggs, of the size of those of a goose, with a soft leathery envelope, and, for the most part, of a dirty yellowish colour, two or three, however, being of a decided brown. When first observed the eggs were piled up in a heap, but the snake soon reduced them all to the same level, and, having arranged them in a suitable manner, coiled herself up on them, and completely covered them with the thick folds of her body. During the last week the snake has once or twice come off her eggs, and two days ago she was coiled round them, and the eggs were slightly heaped together. The temperature of the compartment is about 70°, and under the blanket which covers the python and her eggs it is probably 20° higher. This snake has always been a spiteful one, and under her present circumstances she is more than ever disposed to resent any interference, so that the precise number of the eggs, and other particulars relating to the interesting event, have not yet been ascertained. The fact of the python incubating her eggs was, I believe, first noticed at these Zoological Gardens many years ago, but was then generally discredited. It has since been observed at Paris, where some young snakes were produced, and the present behaviour of the python in the Regent's Park confirms the belief that incubation is the rule with this division of the family Boidæ. This snake has not fed for the last twenty-one weeks. —*E. W. H. Holdsworth, in the 'Field' Newspaper.*

*The Great Pythoness at the Zoological Gardens.**

Among advertisements to seekers of amusement, one from the Zoological Society has, probably, been observed by our readers. It announces that at the Society's Gardens "the large python may be now seen incubating her eggs." We confess that this advertisement somewhat surprised us; for, having recently read in the Treatise on

---

* From the 'Athenæum' of February 8, 1862.

Reptiles, published in the last edition of the 'Encyclopædia Britannica,' that "no reptile is known to hatch its eggs," we were not prepared for an announcement from the Zoological Society so directly in opposition to that of the author of this recent treatise, which is supposed to be a high authority on reptiles. True, herpetology has by no means kept pace with other sciences, many important features still remaining obscure; yet we thought that the question of reptiles hatching their eggs had been as firmly settled as that all ophidians are oviparous. But from the days of Pliny, who tells us that young boars feed on cow's milk, and that they are indebted to this mythical connexion with the bovine family for their name, mighty serpents, worse

> "Than fables yet have feigned or fear conceived,"

have always been subjects of mystery, and it is not, therefore, any very great wonder that opinions should differ respecting the hatching of their eggs. The pythoness which has suddenly become a celebrated and interesting character in the great London world, where almost daily some event or person is elevated to a prominent position only to be put aside when a new wonder appears, is one of the large varieties of the great boa family. It was born in West Africa, and been eleven years in the Gardens, during which period it has thriven well, waxing yearly in strength, girth and length, until now it is a very giant among the serpents in the Zoological Society's collection.

It is better off than many animals in the Gardens which live in single blessedness in their narrow prison-houses, for the great lady python has a husband. We must say, however, as will be seen presently, she does not seem to derive any great comfort from his society. It may be that, because her mate is much less than herself, she regards and treats him with contempt. He is a dwarf compared to her, being a kind of reptilian Brummel, toying as it were with peas, while his wife eats scores of animals. She has gorged ten full-grown rabbits at a sitting, or coiling rather; and on the last occasion that we saw the interesting couple at their dinner (provided every Friday at the fashionable hour of seven) she stowed four rabbits in her elongated maw in an amazingly short time (how many more followed we know not), while her husband not only turned away from a rabbit, but was absolutely insensible to the attraction of a dainty duck which quacked provokingly under his very nose. Do not, however, suppose that the male serpent is puny or powerless. Waterton himself, who came forth from a cavern with a boa encircling him with its muscular coils, would have succumbed under the grip of such a reptile as this. We only wish it to be understood that it is small compared to the pythoness.

The great egg-laying event occurred four weeks ago. The phlethoric condition of the serpent occasioned uneasiness. Some supposed that she had bolted a stray blanket; it was considered whether something might not be done to relieve the great reptile, when she extruded, as well as the keeper can estimate, about one hundred eggs. These, enclosed in a white leather-like substance, are about the size of those of a goose, the majority of a dirty white appearance, connected by a membrane. Among them are two small red eggs, and many are indented, probably by the great pressure of the serpent's body. It is remarkable that this prolific extrusion of eggs, which might be supposed to have exhausted the animal and consequently excited hunger, has had apparently an opposite effect. At all events, the reptile has not broken fast for twenty-three weeks, her husband having, meanwhile, indulged in occasional rabbits. Indeed, the sight of these animals, pleasantly provocative at other seasons, seemingly only irritates the pythoness: a few days since, an unsuspecting rabbit having frisked near her ladyship, she straightway seized it by the throat and cast the affrighted beast savagely from her. And on more than one occasion, when her husband, doubtless actuated by proper paternal pride and feeling, approached his wife in order to see how domestic matters were going on, she has, to use the keeper's words, shouldered him away with one of her great coils, showing plainly that by thus giving him the cold shoulder she prefers performing her maternal duties unassisted. Once, and once only, has the keeper seen her absent from her interesting incubatory operation; and then, before he could get round to the back of the cage to have a better view of the eggs, she was on them again. In fact, she much resembles an old hen with a brood, puffed up by maternal pride and conceit, and is in a highly excitable condition; spiteful too, according to the keeper, for she has struck more than once at objects outside the glass which have irritated her. Though she does not eat, she drinks freely; but as water is near her, she is not obliged to leave her eggs to assuage thirst. Having communicated these interesting particulars, the keeper kindly went round to the back of the cage, opened the door and removed the blanket cautiously. There, true enough, in direct opposition to the non-hatching theory, was the mighty pythoness in great coils—

> "Fold above fold, a surgy maze, her head
> Crested aloft,"

not a whit attenuated by her long fast, while beneath the lowest coil were bunches of eggs, some plainly visible between the folds of the coil, others, as the keeper said, being only partially seen in consequence of their being overlaid by the serpent's body. Some of the eggs were of a dirty green-white, decomposition having probably taken place,—a supposition strengthened by the odour emanating from them and also from the serpent. The removal of the blanket, though effected most quietly, immediately excited the pythoness. Her head, which was lying on the topmost coil, in the best position for observation, was suddenly raised; she became restless, darted out her long quivering tongue with great rapidity, and would have struck the keeper had he not recovered her with the blanket and put an end to her irritation.

It will be interesting to watch the result. Immediately opposite the pythoness's cage is a lively member of the viper family, which was hatched in the Gardens in 1860 from an egg; and we understand that a boa was born in Paris from an egg hatched by the female. Thus the Zoological Society may reasonably look forward to an increase of its interesting collection of reptiles; and though the Fellows are not probably particularly desirous to have an accession of one hundred pythons to their stock, yet a few lively baby pythons would undoubtedly be an important addition to the attraction of their unrivalled Gardens during the ensuing season, when our metropolis will be crowded by sight-seeing visitors. We trust, however, that, apart from this financial consideration, the Society will take care that the pythoness shall be carefully and closely observed while she is incubating.

[I entertain considerable doubts as to the term "incubating," which I find employed by all our zoologists on this interesting occasion: without consulting a dictionary or lexicon as to the meaning of the word, it is quite certain that we naturalists have applied it to a phenomenon which cannot be exhibited by a pythoness; that phenomenon is the application of heat to the egg by means of the superimposed body of one or other of the parents. Viewing incubation in this light, we must apply some other term to the exhibition in Regent's Park. The design of the parent may be to cool the eggs by contact with her body; it may be to protect them from any unnatural taste for juvenile pythons on the part of father python, — a taste of which we have had many instances within the range of our zoological researches: indeed it is of little use to speculate: we know that the imposition of a body colder than the surrounding atmosphere can have no tendency to vivify the eggs, and *that* we generally believe to be the object of incubation.—*Edward Newman.*]

MR. CURTIS'S COLLECTIONS of FOREIGN COLEOPTERA, &c.—This choice collection, which was commenced thirty years since, is particularly rich in Species from New Holland, Java, the Philippine Islands, the Cape, Senegal, Gambier, South America, including Cayenne, Chili, Lima, Columbia, also Mexico, North America and the South of Europe. There are also many fine species from Madagascar, Mauritius, Port Natal, Valparaiso, West Indies, New Grenada, Guatemala, Assam, East Indies, Ceylon, Algiers, Thibet, New Guinea, Siberia, &c.

The specimens are in the most perfect condition, are arranged, and have been named by Dejean and other eminent Entomologists.

The following is the list of the Families for sale:—

		Species.	Specimens.	Price. £	s.	d.
Carabidæ	about	979	1920	72	0	0
Malacodermes	„	278	581	7	10	0
Silphidæ	„	65	142	1	7	0
Lamellicornes	„	1117	2530	95	0	0
Xylophagi-Paussi	„	180	290	5	10	0
Mantidæ and Phasmidæ	„	43	82	8	0	0
Aptera and Myriopoda	„	68	102	2	0	0

Apply to Mr. Curtis, 18, Belitha Villas, Barnsbury Park.

To Entomologists.

HENRY ROGERS, of Freshwater, in the Isle of Wight, has been advised by his friends to collect during the approaching season for a limited number of Subscribers, at £2 2*s*. each. Being acquainted with the best localities for the rarer Lepidoptera, he has no doubt of giving perfect satisfaction. The season will commence the first week in April and terminate at the end of October. Gentlemen will please to send in their names and subscriptions as early as possible, as many of the shares are already taken. A gentleman's private collection of Birds for sale, in one lot; many of them rare and valuable.

Address, Henry Rogers, Freshwater, Isle of Wight.

SUGGESTIONS FOR FORMING COLLECTIONS OF BIRDS' EGGS.—These 'Suggestions' are from the pen of Mr. Newton, than whom no one was ever better qualified for the task. The first object is to identify the egg, to be quite sure to what bird it belongs. Mr. Newton justly considers that an egg wrongly named is worse than no specimen at all. As soon as the egg is positively identified the next object is to authenticate it, by attaching such a mark as can neither be removed nor obliterated. Then follows a full and most minute description of the mode of blowing eggs, with figures of all the instruments necessary to be used; it is expressly explained that no hole should be visible, and it is also explained how to avoid this; on no account whatever should there be a hole at either end, and there should be but one hole. The difficulty of removing the contents from eggs that have been sat on and nearly hatched is entirely overcome; and the proper instruments to use are not only described but figured, and the requisite information is given where they may be obtained. Finally, we are shown how to strengthen the shell of delicate eggs before drilling the hole through which their contents are to be emptied.—Price 7d., post free.

SYNONYMIC LIST of BRITISH BUTTERFLIES and MOTHS. By Henry Doubleday.—This is the only complete List of British Lepidopterous Insects. It contains the names and synonymes of every Butterfly and Moth discovered in Great Britain up to the date of publication. The arrangement is founded on that of M. Guenée, the *Facilis Princeps* of Lepidopterists. The great object in printing this most complete and laborious work is to establish a uniform nomenclature, the diversity hitherto existing, both in names and arrangement, being a source of confusion and perplexity to all beginners. Not only is Mr. Doubleday's own collection (the normal collection of British Lepidoptera) arranged and named in accordance with this list, but the Entomological Societies of Oxford and Cambridge adopt it in their 'Accentuated List,' recently published.

Price, printed on both sides, 7d. post free; or printed in duplicate (one copy for Labels and the other for reference), 2s., post free.

Address, "Edward Newman, 9, Devonshire Street, Bishopsgate, London, N.E."

CONTENTS.

Proceedings of Societies.—Entomological Society, 7905. Entomological Club, 7914.

Insects.—Scales on the Wings of Lepidoptera, 7915. Lasiocampa Rubi bred in January; Great abundance of Wasps in 1861, *Alexander Wallace, M.D.*, 7917, 7918. Capture of Cryphalus Abietis and Cryphalus Picææ near Market Harborough, *Rev. A. Matthews, M.A.*, 7918. Notes onthe Entomology of the Isle of Man, *Rev. Hugh A. Stowell, M.A.*, 7918.

Quadrupeds.—A Summary of the History of the Leporines, *E. W. H. Holdsworth, Esq., F.L.S., Z.S., &c.*

Birds.—Mildness of the Season; Song of Birds, *Col. H. W. Newman*, 7929, 7930. Occurrence of the Common Buzzard at Rifley, near Lynn, *W. Wilson, Esq.*, 7930. Occurrence of the Short-toed Lark and other Rare Birds in Hampshire, *Rev. J. Pemberton Bartlett, M.A.*, 7930. Note on the Shore Lark and Little Owl in Norfolk, *H. Stevenson, Esq.*, 7931. Occurrence of the Crossbill in England; Gatherings of Magpies, *Captain Henry Hadfield*, 7931. Three Ravens feeding on a dead Sheep, *W. L. Barclay, Esq.*, 7932. Notes on the Spotted Woodpecker, *Henry L. Saxby, Esq.*, 7932. Food of the Wren, *James Fitzherbert Brockholes, Esq.*, 7935. Deposition of Eggs by the Cuckoo, *Rev. A. R. Hogan*, 7935. Occurrence of Caprimulgus ruficollis in England, *John Hancock, Esq.*, 7936. Nesting of the Chimney Swallow, *J. Ranson, Esq.*, 7937. Migration of Swallows, *Captain Hadfield*, 7937. Early Appearance of the Swallow, *George H. Parke, Esq.*, 7938. Occurrence of the Little Bustard in Yorkshire, *W. W. Boulton, Esq.*, 7938. Re-examination of Sabine's Snipe; Correction of an Error, *Edward Hearle Rodd, Esq.*, 7938. Variety of Snipe, *John Gatcombe, Esq.*, 7938. Occurrence of the Green Sandpiper at Leyton, *W. L. Barclay, Esq.*, 7939. Occurrence of the Egyptian Goose near Dublin, *H. Blake Knox, Esq.*, 7939. Pochards in the Serpentine, *Henry Hussey, Esq.*, 7939. Occurrence of the Little Gull and Little Auk Auk near Lynn, *W. Wilson, Esq.*, 7939. The Little Gull, *Frederick Bond, Esq.*, 7939. Occurrence of the Little Gull at Plymouth, *John Gatcombe, Esq.*, 7940. Breeding Habits of the Petrel, *S. P. Saville, Esq.*, 7940.

Reptiles.—An Unexpected Arrival, *E. W. H. Holdsworth, Esq.*, 7941. The Great Pythoness at the Zoological Gardens, 7941.

To Egg Collectors.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, London, on Wednesday, 9th April, at half-past Twelve precisely, some RARE and WELL-AUTHENTICATED EGGS, sent from Lapland, during the last two years, by the Collector instructed and formerly employed by the late JOHN WOLLEY, Jun., Esq. A Catalogue is in preparation, and may be had on application to the Auctioneer, as above.

To Entomologists.

W. WINTER wishes to collect all Orders of Insects during the coming season in the fens at Ranworth, Horning, and the sea-coast at Great Yarmouth. He would wish to devote all his time to the above, and proposes to do it by subscription again, in shares at £1 1*s*. each, and 3*s*. for a box, to be found by himself. W. W. was enabled to give his subscribers last season the following new insects:—Nonagria Elymi, Lipara lucens, Pteromalus spectribilus [? Ed.], and another undescribed new species. Gentlemen wishing to subscribe to the above will please send their names and subscriptions, as early as convenient, to W. Winter, at Bressingham, near Diss; he begs to return his best thanks to those who have kindly supported him on other occasions. He will be happy to answer any inquiries respecting the above, on receiving an addressed envelope.

Bressingham, near Diss, Norfolk,
February 24, 1862.

Notice of Removal.

MRS. FOXCROFT (Widow of the late J. Foxcroft), Entomologist, begs most respectfully to inform her friends and patrons that the lease of 47, Great Russell Street having expired, she has removed to 26, Duke Street, Bloomsbury, W.C. (six doors from her late residence), where a continuance of their kind favours is most earnestly solicited.

[illegible] Street N.E.